United States Steel Corporation
Law Department
600 Grant Street
Pittsburgh, PA 15219-2800
Tel: 412.433.2919
Fax: 412.433.2964
E-mail: dwhacker@uss.com

David W. Hacker
Attorney-Environmental

September 5, 2008

VIA E-MAIL
AND CERTIFIED MAIL RETURN RECEIPT REQUESTED

Mr. Brian H. Dickens, P.E.
Air & Radiation Division
U. S. Environmental Protection Agency
Region 5
77 W. Jackson Blvd. AE-17J
Chicago, IL 60604-3590

Dear Mr. Dickens:

Re: United States Steel Corporation – Gary Works
August 5th Meeting Regarding the Notice of Violation dated June 25, 2008

United States Steel Corporation (U. S. Steel) appreciates the opportunity to respond to the above-referenced Notice of Violation (NOV)/Finding of Violation (FOV) and is thankful for the attention and cooperation expressed by you and other Agency and Department representatives during the meeting among the U. S. Environmental Protection Agency (USEPA), the Indiana Department of Environmental Management (IDEM) and U. S. Steel on August 5th. We believe the meeting was productive and look forward to expeditiously resolving the issues that were raised during that meeting. This correspondence is intended to continue with our open dialogue to allow the resolution process to be expedited, and to document and clarify some of the concerns that were mentioned. To facilitate an easier review of our responses, we have provided the numbered paragraph in the NOV/FOV along with the corresponding allegation as provided in the NOV/FOV, followed by our response.

PARAGRAPH NO. 7
USEPA ALLEGATION – HOT IRON RAILCARS:

On May 14 and 15, 2007, EPA witnessed several smoking hot iron transfer railcars (bottle cars) at the facility. Visible emissions exceeding zero percent (0%) opacity from interplant transfer of product are violations of 326 IAC 6.8-10-3-6 of the Indiana SIP and Title V Permit Condition C.5(a)(7).

U. S. STEEL RESPONSE:

While U. S. Steel recognizes that some visible emissions may, from time to time, be observed from hot iron transfer railcars, the opacity standard cited in the NOV/FOV does not apply to such railcars because molten iron does not meet the definition of "material." IDEM has defined "material," as that term is used in 326 IAC

6.8-10-3-6 of the Indiana SIP and Title V Permit Condition C.5(a)(7), at 326 IAC 6.8-10-2(11), as "raw process material, byproduct, intermediate product, waste product, final product, and dust collected by control equipment, having proportion of loose, dry dust equal to or greater than five-tenths percent (0.5%) as measured by the ASTM C-136 method* [incorporated by reference], having potential to emit particulate emissions when disturbed by transfer, processing, and transportation activities defined in this rule. Material may include the following: (A) Sand. (B) Limestone. (C) Coal. (D) Gypsum. (E) Slag. (F) Gravel. (G) Clay. (H) Cement. (I) Ores. (J) Grain." This provisions is also required by and recited in Gary Works' Title V Permit Condition, C.5(a)(7), which incorporates the regulatory definition of "material" by reference per General Condition B.1 of the permit, which states that. "Terms in this permit shall have the definition assigned to such terms in the referenced regulation." Clearly, the standard is not meant to apply to *molten* or *liquid* substances because ASTM C-136, which is incorporated by reference, is titled, "Standard Test Method for Sieve Analysis of Fine and Course Aggregates." Thus, the regulation applies to "fine" or "course *aggregates*" which does not include molten iron. The examples of "materials" provided in the regulation are all dry materials that are suitable for testing under ASTM C-136. In addition, consistent with this interpretation, IDEM has observed the blast furnace operations, including railcar transport of molten iron, since the rule was codified, but it has never advised U. S. Steel that the railcar was subject to this provision or a 0% opacity standard. Because the opacity limitation at in 326 IAC 6.8-10-3-6 does not apply to such railcars, the general opacity standard provided at 326 IAC 6.8-10-3(9) applies to emissions from the railcars. This provision requires the emissions from the railcars to meet a 20%, three-minute opacity standard pursuant to Method 9, except the determination is based upon an average of twelve consecutive observations recorded at fifteen second intervals. For these reasons, the issuance of an NOV/FOV addressing the emissions from the railcar is inappropriate.

PARAGRAPH NO. 8
USEPA ALLEGATION – EMISSIONS FROM NO. 8 SLAG PIT

On May 17, 2007, EPA took visible emission readings at No. 8 slag pit at the facility and observed opacity of 17.5% and 16.5% on a three minute average. Visible emissions exceeding 10 percent (10%) opacity on a three minute average at slag pits are violations of 326 IAC 6.8-10-3-4 of the Indiana SIP and Title V Permit Condition C.5(a)(5).

U. S. STEEL RESPONSE:

Prior to our meeting, U. S. Steel requested that USEPA provide us with the visible emissions report that documented the observations referenced above. U. S. Steel appreciates EPA's response by providing us with the report. We reviewed the report and believe USEPA observed no violations from the slag pit on May 17th. While U. S. Steel is not contesting the validity of the readings; we do believe, however, that the referenced citation, 326 IAC 6.8-10-3-4 of the Indiana SIP does not apply to the slag pit. Specifically, 326 IAC 6.8-10-3-4 of the Indiana SIP states:

> (4) The opacity of fugitive particulate emissions from *continuous transfer of material* [emphasis added] onto and out of storage piles shall not exceed ten percent (10%) on a three (3) minute average. The opacity shall be determined using 40 CFR 60, Appendix A, Method 9*. The opacity readings shall be taken at least four (4) feet from the point of origin.

To determine the applicability of the regulation, one must determine if *continuous transfer of material* is occurring. If the emissions were from molten slag, such emissions are not subject to the standard of 326 IAC 6.8-10-3-4 because such emissions only apply to *material* [emphasis added] being "continuously transferred." For reasons explained above, molten slag is not "material" as that term is defined at 326 IAC 6.8-10-2(11). Second, regardless if slag is "material,", the emission observed were not from the "continuous transfer" of slag. At 326 IAC 6.8-10-2(5), IDEM defines "continuous transfer" as "[the] transfer of material onto or out of storage piles by *conveyor* [emphasis added]." There are no conveyors associated with the No. 8 Blast Furnace Slag Pit. These definitions are incorporated by reference into Gary Works' Title V permit as explained above. Because the opacity limitation at 326 IAC 6.8-10-3-4 of the Indiana SIP and Title V Permit Condition C.5(a)(5) do not apply to the emissions observed by EPA on May 17, 2007, the opacity standard provided at 326 IAC 6.8-10-3(9) applies to such emissions. As noted above, this provision requires the source's emissions to meet a 20%, three-minute opacity standard pursuant to Method 9, except the determination is based upon an average of twelve consecutive observations recorded at fifteen second intervals. The standard at 326 IAC 6.8-10-3(9) applies to such operations, whether or not the slag is a material. Even if molten slag were deemed a "material" as defined in 326 IAC 6.8-10-3-6, the standard at 326 IAC 6.8-10-3-3(C)(ii), which applies to certain iron and steel material transfer operations, also refers to the standard at 326 IAC 6.8-10-3(9) for such emissions. For these reasons, the issuance of an NOV/FOV addressing the emissions from the No. 8 Slag Pit is inappropriate

PARAGRAPH NO. 9
USEPA ALLEGATION – Q-BOP SLAG SKIMMING EMISSIONS

On May 14, 200 7, EPA observed visible emissions from slag skimming exiting the Q-BOP Shop. Visible emissions exceeding zero percent (0%) opacity from slag skimming exiting the Q-BOP Shop is a violation of 326 IAC 6.8-10-3-7(D) of the Indiana SIP and Title V Permit C.5(a)(9).

U. S. STEEL RESPONSE:

The opacity standard provided at 326 IAC 6.8-10-3-7(D) of the Indiana SIP and Title V Permit C.5(a)(9), does not apply to the *slag skimming* exiting the Q-BOP shop. The provision 326 IAC 6.8-10-3-7 provides the emission limitations from various "material processing" facilities, which does not include slag skimming. Specifically, 326 IAC 6.8-10-3-7(D) provides:

> "There shall be a zero percent (0%) frequency of visible emission observations from a building enclosing all or a part of the *material processing equipment* [emphasis added] except from a vent in the building. Compliance with this standard shall be determined by 40 CFR 60, Appendix A, Method 22*."

The *slag skimming* operations that USEPA observed separates *molten* iron from *molten* slag, with each having a different specific gravity. At 326 IAC 6.8-10-2(12), IDEM defines "material processing facilities" as:

> "Material processing facilities" means the equipment, or the combination of different types of equipment, used to process material for use in the plant or for commercial sale. The following sources are examples of these types of facilities:
> (A) Power generation plants.
> (B) Portland cement manufacturing plants.
> (C) Asphalt concrete manufacturing plants.
> (D) Concrete manufacturing plants.
> (E) Lime manufacturing plants.
> (F) Iron and steel manufacturing plants, which include blast furnaces and basic oxygen furnaces.
> (G) Sinter plants.
> (H) Coal and coke preparation plants.
> (I) Slag processing plants.
> (J) Brick manufacturing plants.
> (K) Grain processing elevators.
> (L) Food and feed manufacturing plants.
> Equipment includes initial crusher, screen, grinder, mixer, dryer, belt conveyor, bucket elevator, bagging operation, storage bin, and truck or railroad car loading station."

U. S. Steel recognizes that the provision specifically includes "Iron and steel manufacturing plants," "blast furnaces and basic oxygen furnaces," AND "slag processing plants," the provision is limited to apply to facility or equipment at iron and steel manufacturing plants and slag processing plants that process "material." IDEM clarifies its intent by listing various types of equipment that it considers to be material processing equipment, which includes storage bins, mixer, grinder, etc. U. S. Steel notes that iron and steel manufacturing plants and slag processing plants do handle "material" as the regulation suggests; however, molten slag and molten iron are not such materials. In other words, one must be processing "material" in order it to have a "material processing facility." For reasons stated in our response to allegation provided in paragraph no. 7, above, the molten iron and molten slag are not "materials" as defined in the IDEM regulation. Therefore, the emissions from slag skimming are not coming from a "material" as defined in the regulation; nor are they coming from "material processing equipment" or "material processing facility" as the terms are defined in the corresponding IDEM regulations. As noted above, these definitions are incorporated by reference into Gary Works' Title V permit.

We also believe it is significant to note that U. S. Steel observed no emissions from the building opening of the Q-BOP Shop during four slag skimming events for two consecutive weeks, when conducting visible emission readings of these operations on November 20, 2007; and November 29, 2007, at the request of USEPA. U. S. Steel has previously provided USEPA with the reading results.

For these reasons, the issuance of an NOV/FOV addressing the emissions from slag skimming is inappropriate

PARAGRAPH NO. 10
USEPA ALLEGATION – EMISSIONS FROM BLAST FURNACE CASTING AND FILLING OPERATIONS

In response to an October 26, 2007, Section 114 of the CAA information Request, U.S. Steel submitted to EPA recorded visible emission exceedances at its blast furnace casting and filling operations on the following dates and times at specified units:

Date	Time	Unit
11-12-07	11:31-13:12	#4 Blast Furnace
11-14-07	9:39-10:12	#4 Blast Furnace
11-20-07	8:37-12:44	#4 Blast Furance
11-21-07	7:54-9:01,10:12-11:54	#4 Blast Furnace
11-29-07	9:35 -14:27	#4 Blast Furnace
11-26-07	7:31-11:12	#4 Blast Furnace
12-04-07	11:45-11:48	#4 Blast Furnace
11-12-07	9:33-10:45	#8 Blast Furnace
11-13-07	11:47-13:08	#8 Blast Furnace
11-14-07	10:07-10:57	#8 Blast Furnace
11-19-07	8:02 - 8:03	#8 Blast Furnace
11-28-07	11:23-13:26	#8 Blast Furnace
12-07-07	7:19-7:20	#8 Blast Furnace

Visible emissions exceeding zero percent (0%) opacity from Nos. 4,6, and 8 blast furnace casting and filling operations outside of the enclosure that surrounds the bottle car and spout are violations of 326 IAC 6.8-10-3-7(D) of the Indiana SIP and Title V Permit Condition C.5(a)(9).

U. S. STEEL RESPONSE

As noted above, 326 IAC 6.8-10-3-7(D) provides:

"There shall be a zero percent (0%) frequency of visible emission observations from a building enclosing all or a part of the *material processing equipment* [emphasis added] except from a vent in the building. Compliance with this standard shall be determined by 40 CFR 60, Appendix A, Method 22*."

The casting operations observed and noted above pertain to the casting and filling of molten iron. For the reasons expressed to our response to the allegations expressed in paragraph 9 in the NOV/FOV, as provided above, the emissions from casting and filling of molten iron are not subject to 326 IAC 6.8-10-3-7(D), because molten iron is not a "material." As previously noted, these definitions are incorporated by reference into Gary Works' Title V permit. For these reasons, the issuance of an NOV/FOV addressing the emissions from casting and filling operations is inappropriate

PARAGRAPH NO. 11
USEPA ALLEGATION – EMISSIONS FROM BLAST FURNACE CASTHOUSE

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports and in its Environmental Incident Reports the following exceedances at its blast furnace casthouses:

Date	Time	Percent Visible Emissions
2-6-07 (#8)	8:34-8:40	25.4
3-14-07 (#14)	12:46-12:58	21.2, 34.2
8-21-07(#8)	11:50-11:56	21.5
8-28-07(#6)	9:20-9:22	21.7
10-3-07(#8)	1:02-1:09	22.9
10-23-07(#8)	1:05-1:10	40.6
11-14-07(#4)	9:37- 9:48	29.6,35.1

Visible emissions exceeding twenty percent (20%) opacity on a six-minute average from blast furnace casthouses are violations of 326 IAC 5-1-2 of the Indiana SIP, Title V Permit Condition C.I, and 40 C.F.R. Part 63, Subpart FFFFF.

U. S. STEEL RESPONSE

As we explained during our meeting, based upon its review of its Environmental Management System (EMS), U. S. Steel believes the incidents identified above are isolated, unrelated incidents. The EMS is an integral part of Gary Works. The Gary Works EMS received ISO 14001 certification in 2001, and has maintained that certification to the ISO 14001 standards to date. Two key portions of the EMS are the Environmental Incident Reporting System (EIRS) and the Corrective and Preventative Action Request (CPAR) system. All environmental incidents, including permit excursions and deviations, are recorded in the EIRS. A root cause analysis is conducted and corrective and preventative actions are implemented for all environmental incidents. Personnel from the operating Business Units as well as the Environmental Control department are involved in the process. The CPAR system compliments the EIRS through internal auditing of excursions, deviations, and serious potential incidents by verifying that 1) the proper root cause determination has occurred, 2) the corrective and preventative actions were implemented, and 3) the corrective and preventive actions are effective in preventing a recurrence of the incident.

U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident records and has determined that the excursions identified above are not systemic, are not maintenance related; nor could they have been foreseen. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of these excursions to prevent the reoccurrence of such incidents. Our investigation, root cause analysis, and corrective actions for each of the incidents identified above are summarized in Attachment A.

PARAGRAPH NO. 12
USEPA ALLEGATION – EMISSIONS FROM BLAST FURNACES

U. S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports and in its Environmental Incident Reports the following exceedances at its blast furnaces:

Date	Percent Visible Emissions	Unit
09-26-06	>20	#4 Blast Furnace
09-29-06	>20	#6 Blast Furnace

Visible emissions exceeding twenty percent (20%) opacity on a six-minute average from the blast furnaces are violations of 326 IAC 5-1-2 of the Indiana SIP, Title V Permit Condition C.I, and 40 C.F.R Part 63, Subpart FFFFF.

U. S. STEEL RESPONSE

As noted above, these were self-reported Title V Deviations that were reported to the Agency as required. However, U. S. Steel would like to clarify that the opacity limit in 326 IAC 5-1-2 is a 20% 6-minute average that applies to the blast furnace tops, whereas the standards provided at 40 C.F.R. Part, Subpart FFFFF do not apply to the emissions identified in the above table because the Subpart FFFFF limitations apply to the blast furnace casthouse, not the blast furnace top. A review of the EMS indicates that incidents identified above are isolated, non-systemic incidents pertaining to issues regarding coal quality and coal injection rates.

PARAGRAPH NO. 13
USEPA ALLEGATION – EMISSIONS FROM BOPF ROOF MONITORS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports and in its Environmental Incident Reports the following exceedances at its BOP Shop roof monitors:

Date	Time	Percent Visible Emissions
12-12-06	11:28-11:30	21.67
12-19-06	8:05-8:08	21.7
12-27-06	11:28-11:33	21.7, 32.9
02-12-07	8:24-8:27	22.08

02-23-07	11:24-11:27	20.8
04-10-07	7:59-8:02	20.42
04-10-07	8:02 - 8:05	92.08
04-10-07	8:05-8:08	45.83
10-15-07	8:13-8:16	24.2

Visible emission exceeding twenty percent (20%) opacity on a three-minute average from the BOP Shop roof monitors are violations of 326 IAC 6.8-3-4 of the Indiana SIP, Title V Permit Condition D.8.4(b), and 40 C.F.R. Part 63, Subpart FFFFF.

U. S. STEEL RESPONSE

U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident records and has determined that the excursions identified above are not systemic, are not maintenance related; nor could they have been foreseen. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of these excursions to prevent the reoccurrence of such incidents. Our investigation, root cause analysis, and corrective actions for each of these incidents are summarized in Attachment B.

PARAGRAPH NO. 14
USEPA ALLEGATION – EMISSIONS FROM Q-BOP ROOF MONITORS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports and in its Environmental Incident Reports the following exceedances at its Q-BOP Shop roof monitors:

Date	Time	Percent Visible
11-09-06	12:53 - 12:55	20.83
01-15-07	9:01-9:04	21.66
11-22-07	11:30-11:33	22.08

Visible emission exceeding twenty percent (20%) opacity on a three-minute average from the Q-BOP Shop roof monitors are violations of 326 IAC 6.8-3-4 of the Indiana SIP, Title V Permit Condition D.9.4(c), and 40 C.F.R. Part 63, Subpart FFFFF.

U. S. STEEL RESPONSE

U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident records and has determined that the excursions identified above are not systemic, are not maintenance related; nor could they have been foreseen. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of these excursions to prevent the reoccurrence of such

incidents. Our investigation, root cause analysis, and corrective actions for each of these incidents are summarized below:

November 9, 2006 Incident: Based upon a review of its EMS, U. S. Steel determined that wet scrap was delivered by Tube City to the Q-BOP Shop without notification and not preheated. The hot metal charged caused an opacity excursion. As a result of its root cause analysis, U. S. Steel has implemented the following procedures:

- Initiate scrap preheating in winter months if appropriate.
- Issue work instruction to not load wet scrap at the scales. Notify shop operations and scrap manager if necessary to wet scrap at the scales.
- Review craneman's performance. No deviations from the applicable SOP were noted.
- Modify QBOP procedures for hot metal charging and preheating to reinforce that preheating is done during winter months.
- Meet with ISO steering team to discuss incident and preventive measures.
- Ensure that Tube City notifies Steel at the beginning of each shift when scrap is wet.

January 15, 2007 Incident: Based upon a review of the EMS, U. S. Steel determined that a heat on Y furnace at the QBOP experienced a scrap reaction during the hot metal pour. The reaction occurred approximately 10 seconds into the pour. The scrap was preheated for three minutes prior to hot metal charge. U. S. Steel noted that the crane operator did not deviate from standard pouring methods. U. S. Steel determined that the preheat time may have been insufficient in such weather conditions. As a result, U. S. Steel increased the preheat time during such weather conditions.

November 22, 2007 Incident: During its investigation, U. S. Steel determined that black slitter scrap was dumped on top of galvanized and hid the galvanized. As a result, U. S. Steel has implemented the following corrective actions:

- Segregate galvanized pile and limit use of pile to one magnet per heat. (2 mags full are called for in any heat at time of the incident)
- Write formal procedure to segregate galvanized scrap from regular scrap. Take galvanized to a stockpile and when enough is stored transport it to a single scale for exclusive use.
- Reinstruct loading cranemen to be alert for galvanized materials.
- Change use of galvanized material to one mag load per heat.
- Make employees aware of the incident and train them accordingly.

PARAGRAPH NO. 15
USEPA ALLEGATION – EMISSIONS FROM BOP SHOP NORTH GAS CLEANER STACK

During the May 2007 inspection, EPA took visible emission readings and observed the following opacity exceedance at the BOP Shop north gas cleaner stack:

Date	Time	Percent Visible
05-18-07	10:14-10:20	32.5

Visible emissions exceeding twenty percent (20%) opacity on a six-minute average from the BOP Shop north gas cleaner stack is a violation of 326 IAC 6.8-3-4 of the Indiana SIP and Title V Permit Condition D.8.4(c).

U. S. STEEL RESPONSE

Based upon a review of the EMS, U. S. Steel determined that during the maintenance of the fan, an unknown portion of the material used to blast the fan (Black Beauty) and some of the material removed from the fan were not recovered by the vacuum truck. Stack emissions were red colored, indicating that some level of system dust (in addition to Black Beauty sandblast material) was exhausted from the stack during startup. U. S. Steel determined that the dust level in the north system may have been higher than normal as a result of scupper flooding which occurred two days prior to the observation. The flooding resulted from an intentional shutdown of the south gas cleaner for calibration. A leaking 24" equalization valve caused water levels in the north scupper to increase. The high water levels led to fan surging and excess mud buildup. As a result of its root cause analysis, U. S. Steel implemented the following corrective actions:

- Train Gas Cleaner Personnel & Maintenance Managers on revised Start Up procedure.
- U. S. Steel researched the possible use of alternate blast media and continues to investigate other cleaning options. However, to date, U. S. Steel has not found a viable alternative or practical cleaning option.
- A fan start up check list is being finalized and will be utilized in future operations.
- Revised procedures to include the use of a blank between the fan and the stack.
- Developed a procedure for blasting fans and include additional steps to ensure that the blasting media and loosened material is fully recovered.
- Installed level detection equipment in the south waste gas cooler.
- Installed level detection equipment in the north waste gas cooler.

PARAGRAPH NO. 16
USEPA ALLEGATION – IRON AND STEEL MACT O&M PLANS

U.S. Steel's Operations and Maintenance Plans, developed pursuant to 40 C.F.R. Part 63, Subpart FFFFF, do not contain operating parameter limits, including damper position parameters, at which the No. 14 blast furnace and BOP and Q-BOP Shop capture systems must operate. Failing to set damper position parameter limits is a violation of 40 C.F.R. § 63.7800(b)(3)(ii) and Title V Permit Conditions D.7.1, D.8.1, and D.9.1.

U. S. STEEL RESPONSE

U. S. Steel set operating parameter limits during initial compliance demonstration testing, as required by the Iron and Steel MACT standard. As we

explained during our meeting, U. S. Steel would like to clarify that although these parameter limits were not specifically listed in the O&M Plans, U. S. Steel had set and monitored damper position limitations which were and are monitored continuously as required and referenced in the Environmental Control Recordkeeping, Title V System, and Plant Information System.

To fully respond to USEPA's allegation and to address USEPA's concerns, U. S. Steel has revised the above-referenced O&M Plans by specifically listing the parameter limits as opposed to referring to the systems in which such parameter limits are maintained. These O&M Plans are provided as Attachment C.

PARAGRAPH NO. 17
USEPA ALLEGATION – 84-INCH CONTINUOUS PICKLE LINE - MACT

In response to a December 7, 2007, Section 114 of the CAA Information Request, U.S. Steel provided stack test reports for the 84" north continuous pickle line demonstrating the following exceedances:

Stack Test Date	HCl Concentration (ppmv)
09-13-05	62.1
10-06-05	104.2

HCl concentrations exceeding 18 ppmv at the 84" north continuous pickle line are violations of the NESHAP for HCl Process Facilities and HCl Regeneration Plants at 40 C.F.R. § 63.1157(a)(1) and Title V Permit Condition D.11.2(a).

U. S. STEEL RESPONSE:

U. S. Steel believes that, during the time frame above, using all credible evidence, the 84-Inch Pickle Line was in continuance compliance with the applicable MACT standard.

U. S. Steel believes it is significant to note that the MACT standard requires that the scrubber must not exceed an HCl concentration of 18 ppmv **or** achieve at least a 97% scrubber efficiency, i.e., a concentration of HCl alone is not determinative of whether or not the MACT standard is achieved. This MACT standard is also incorporated into Gary Works' Title V permit as Condition D.11.2(a) and (b).

As we discussed, U. S. Steel conducted the test on September 13th because after inspecting the sieve trays, U. S. Steel believed the trays needed to be replaced. U. S. Steel replaced the trays, and as a prudent measure, performed an engineering test to determine if the sieve trays were optimally performing. The engineering test results suggest that the trays were not performing as well as expected especially since the trays were new; however, the tests were not indicators of MACT compliance. U. S. Steel believes that the engineering tests referenced above are not MACT Compliance "Stack Tests," as that term is used in the MACT standard; and IDEM regulations and policy. See http://www.in.gov/idem/4979.htm. Because the

nature, protocol and duration of the tests are different than those required by the MACT standard and Gary Works' Title V permit, the engineering tests do not qualify as "credible evidence," i.e., the engineering tests are not indicative of whether or not the MACT standard would have been achieved if the MACT stack tests were to have been performed at the time the engineer tests were conducted because the test protocols are substantially different.

However, if USEPA believes that such tests qualify as "credible evidence," U. S. Steel believes that USEPA would need to review all engineering test data to determine if the MACT standard had been exceeded. Specifically, while U. S. Steel does not have the scrubber's HCl removal efficiency for the September 13th and October 6th engineering tests, it does have removal efficiencies for an engineering test performed in the same time frame, which yielded HCl emissions well in excess of the 18 ppmv (e.g., 70 ppmv), but the removal efficiency during this time exceeded 98%, therefore, if such test were to be construed as credible evidence, the engineering tests indicate that compliance with the MACT standard was achieved. As we discussed during the meeting, U. S. Steel is attaching the October 27, 2005 test results as Attachment D. These results show concentrations of HCl that are similar to the September 13 and October.

PARAGRAPH NO. 18
USEPA ALLEGATION – COKE OVEN DOOR LEAK OPACITY

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports the following coke oven door leak opacity exceedances:

Date	Percent Doors Leak	Coke Oven Unit
08-25-06	12.00	-
10-05-06	21.70	-
11-06-06	11.11	-
02-28-07	11.54	-
05-08-07	11.04	#7
07-10-07	10.14	#7
07-11-07	11.76	#7
07-26-07	10.71	#5
08-13-07	13.77	#5
10-19-07	11.03	#5

Visible emissions exceeding ten percent (10%) opacity from coke oven door leaks are violations of 326 IAC 6.8-9-3(a)(l) of the Indiana SIP and Title V Permit Condition D.2.4(a).

U. S. STEEL RESPONSE

Prior to USEPA's issuance of the NOV/FOV against U. S. Steel, IDEM and U. S. Steel were in negotiations to resolve the self-reported violations regarding coke oven door leak opacity. U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident records and has determined that the excursions identified above are not systemic, and are not maintenance related. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of these excursions to prevent the reoccurrence of such incidents. Our investigation, root cause analysis, and corrective actions for each of these incidents are summarized below:

Summary Self-Reported Coke Oven Door Leak Opacity Excursions			
Date	**% Door Leaks**	**Root Cause Analysis**	**Corrective Action**
08-25-06	12.00	U. S. Steel has verified that the emissions were due to improperly sealed doors.	• Retrain door adjusters to seal doors.
10-05-06	21.70	U. S. Steel has verified that the emissions were due to unsealed doors, bad doors, leaking frames, and bent door latches.	• Sealed doors and frames. • Replaced doors and latch brackets.
11-06-06	11.11	U. S. Steel has verified that the emissions were due to unsealed doors, and plugged standpipes.	• Retrain door adjusters to seal doors. • Clean plugged standpipes.
02-28-07	11.54	U. S. Steel has been unable to verify the cause of the emissions.	• Sealed leaking doors. • Increase coking time.
05-08-07	11.04	U. S. Steel has verified that the emissions were due to improperly sealed doors.	• Sealed leaking doors
07-10-07	10.14	Consistent with USEPA rounding policy, which adopts ASTM E-380, U. S. Steel believes that no violation of the standard occurred because the value should have been reported as 10%; and is therefore in compliance.	
07-11-07	11.76	U. S. Steel has verified that the emissions were due to improperly sealed doors.	• Sealed leaking doors.

07-26-07	10.71	U. S. Steel has verified that the emissions were due to deteriorated frames and doors.	• Sealed leaks on leaking doors, • Cleaned and adjusted doors.
08-13-07	13.77	U. S. Steel has verified that the emissions were due to deteriorate doors and irregular steam pressure and flow.	• Sealed leaks on leaking doors. • Installed steam transmitters to monitor steam usage.
10-19-07	11.03	U. S. Steel has verified that the emissions were due to improperly sealed doors.	• Sealed leaking doors.

In addition, prior to issuance of the NOV/FOV by USEPA, U. S. Steel was negotiating resolution of pushing violations and thereby refers USEPA to the correspondence provided to IDEM regarding door leaks which is provided as Attachment E. Please note that in Attachment E we have updated our door leak compliance trend document since our submittal to IDEM.

PARAGRAPH NO. 19
USEPA ALLEGATION – COKE PUSHING OBSERVATIONS

Based on EPA's observation of visible emissions during the pushing operations on the No. 5 coke battery and U.S. Steel's Quarterly Deviation and Compliance Monitoring Reports, the facility had the following opacity exceedances:

Date	Percent Visible Emission	Coke Oven Unit
10-30-06	Self Reported Exceedance	-
11-20-06	Self Reported Exceedance	-
01-23-07	Self Reported Exceedance	-
01-24-07	Self Reported Exceedance	-
03-26-07	Self Reported Exceedance	-
03-27-07	Self Reported Exceedance	-
05-13-07	32.50	#5
05-15-07	21.67	#5
06-28-07	25.83	#5
07-11-07	21.67	#2
07-11-07	34.16	#2
07-11-07	25.00	#2
07-11-07	36.67	#2
07-12-07	22.50	#2
07-19-07	38.33	#7
07-22-07	45.00	#7
07-22-07	46.67	#7
09-07-07	31.67	#7
09-14-07	30.83	#2

11-18-07	30.00	#5

Visible emissions exceeding twenty percent (20%) opacity during the pushing operations on the No. 5. coke battery are violations of 326 IAC 6.8-9-3(a)(3) of the Indiana SIP and Title V Permit Condition D.2.4(c).

U. S. STEEL RESPONSE

Prior to USEPA's issuance of the NOV/FOV against U. S. Steel, IDEM and U. S. Steel were in negotiations to resolve the self-reported violations regarding coke oven pushing observations. U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident records and has determined that the excursions identified above are not systemic, and are not maintenance related. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of these excursions to prevent the reoccurrence of such incidents. Our investigation, root cause analysis, and corrective actions for each of these incidents are summarized below:

Summary Self-Reported/EPA Observed Pushing Emission Excursions

Date	% Opacity	Root Cause Analysis	Corrective Action
10-30-06	26.67	U. S. Steel has verified that the emissions were due plugged standpipe resulting from high roof carbons blocking the tunnel head.	• Inspect oven for carbon levels. • Inspect coke side standpipe.
11-20-06	24.17	U. S. Steel has verified that the emissions were due to cross drafting resulting from extended coking time and low charge.	• Reinstruct larry car operator to fully charge ovens.
01-23-07	32.5	U. S. Steel has verified that the emissions were due deteriorated thru-walls.	• Replace affected thru-walls.
01-24-07	23.3	U. S. Steel has verified that the emissions were due deteriorated thru-walls.	• Replace affected thru-walls.
03-26-07	31.67	U. S. Steel has verified that the emissions were due an early push resulting from the pushing operator failing to follow standard operating procedure.	• Reinstruct the pushing operator on minimizing green push procedure.
	27.50	U. S. Steel has verified that	• Install a permissive on

03-27-07		the emissions were due the east duct limit switch vibrating loose causing the duct to retract during the push which resulted in the loss of baghouse suction.	the ram that will not allow the duct to retract during the push.
05-13-07	32.50	U. S. Steel has verified that the emissions were due incomplete coking resulting from restricted air flow to the affected wall chambers.	• Extend coking for affected ovens. • Revise procedure to increase coking time for an oven that has been passed up green. • Reinstruct operators and managers on new procedure.
05-15-07	21.67	EPA observed	
06-28-07	25.83	U. S. Steel has verified that the emissions were due to incomplete coking resulting from poor gas quality and erratic BTUs.	• Clean orifices. • Rod out air ports.
07-11-07	21.67 34.16 25.00 36.67	U. S. Steel has been unable to verify the cause of the emissions, though it is believed the speed of the pusher ram may have been set faster than the capacity of the capture system.	• Slow ram speed. • Hang fire proof curtains on the hoods of the door machine • Automate dedusting system • Inspect all elements of both scrubber cars to verify proper operation
07-12-07	22.50	U. S. Steel has been unable to verify the cause of the emissions, though it is believed the speed of the pusher ram may have been set faster than the capacity of the capture system.	• Slow ram speed. • Hang fire proof curtains on the hoods of the door machine • Automate dedusting system • Inspect all elements of both scrubber cars to verify proper operation
07-19-07	38.33	U. S. Steel has verified that the emissions were due to incomplete coking resulting from plugged gas lines.	• Cleaned out orifices and gas headers and lines
07-22-07	45.00 46.67	U. S. Steel has verified that the emissions were due to incomplete coking resulting	• Increase coking time. • Clean flues

		from plugged heating wall flues.	
09-07-07	31.67	U. S. Steel has verified that the emissions were due to incomplete coking resulting from plugged heating wall flues.	• Clean flues. • Reinstruct operators on minimizing green heat procedure.
09-14-07	30.83	U. S. Steel has verified that the emissions were due to incomplete coking resulting from poor combustion in the oven wall.	• Reinstruct operators on minimizing green heat procedure.
11-18-07	30.00	U. S. Steel has been unable to verify the cause of the emissions.	

In addition, prior to issuance of the NOV/FOV by USEPA, U. S. Steel was negotiating resolution of pushing violations and thereby refers USEPA to the correspondence provided to IDEM regarding pushing compliance which is provided as Attachment E. Please note that in Attachment E we have updated our pushing compliance trend document since our submittal to IDEM.

PARAGRAPH NO. 20
USEPA ALLEGATION – COKE OVEN OFFTAKE PIPING VISIBLE EMISSIONS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports the following visible emissions exceedances at the coke oven Offtake piping:

Date	Percent Offtake Piping Visible	Coke Oven Unit
08-23-06	6.12	Self-Reported
10-17-06	6.38	-
11-09-06	5.97	-
04-27-07	6.98	#2
05-04-07	5.81	#2
07-31-07	5.95	#2
08-13-07	5.43	#2

Visible emissions exceeding five percent (5%) opacity from the coke oven Offtake piping are violations of 326 IAC 11-3-2(d) of the Indiana SIP and Title V Permit Condition D.2.5(c).

U. S. STEEL RESPONSE

U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident

records and has determined that the excursions identified above are not systemic, and are not maintenance related. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of these excursions to prevent the reoccurrence of such incidents. Our investigation, root cause analysis, and corrective actions for each of these incidents are summarized below:

Summary Self-Reported/EPA Coke Oven Offtake Piping Excursions			
Date	**% Offtake Piping Visible**	**Root Cause Analysis**	**Corrective Action**
08-23-06	6.12	U. S. Steel determined that an oven pusher side had a bad valve body plugging up which created excessive pressure in the oven contributing to leaks; and coke side caps needed to be sealed.	Sealed No. 11 coke side cap. Removed tar from coke side caps. Sealed pusher side base. Retrained door adjusters to seal doors.
10-17-06	6.38	No. 2 Battery was taken down to replace a valve body, which resulted in excessive backpressure, which compromised the seals on offtakes. U. S. Steel also determined that a coke oven's side slip collar was leaking because the gooseneck did not sit properly into the slip collar.	Sealed leaking offtakes and replaced components as necessary.
11-09-06	5.97	Deterioration of standpipes.	Immediate corrective actions involved sealing. Other corrective actions included replacing valves and cokeside standpipes as necessary.
04-26-07	6.98	Leaking packing gland; hole in slip collar; goosenecks plugged with tar.	Sealed and cleaned leaking offtakes. Changed goosenecks. Changed valve body. Retrain gas tenders regarding responsibilities including inspection of goosenecks and seals.

05-04-07	5.81	A standpipe flange and base flange were warped. A gooseneck was not sitting in the slip collar properly. Excessive tar buildup.	Immediate corrective actions included removing excessive tar and patching. Also replaced standpipes, goosenecks, and slip collars.
07-31-07	5.95	Deteriorated offtake piping, refractory brick and patching materials.	Replaced 57 pusher side offtake base; 19 coke side offtake base; 8 pusher side offtake base; and sealed all leaking offtakes.
08-13-07	5.45	Consistent with USEPA rounding policy, which adopts ASTM E-380, U. S. Steel believes that no violation of the standard occurred because the value should have been reported as 5%; and is therefore in compliance.	

PARAGRAPH NO. 21
USEPA ALLEGATION – COKE OVEN PROCESSING EQUIPMENT VISIBLE EMISSIONS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports the following visible emissions exceedances at the coke processing equipment:

Date	Minutes in Violation	# of Violations
09-28-06	15	1
10-07-06	15	1
06-24-07	45	3
09-15-07	15	1
12-18-07	15	1

Visible emissions exceeding sixty percent (60%) opacity from the coke processing equipment are violations of 326 IAC 5-1-2 of the Indiana SIP and Title V Permit Conditions C.1(b)and D.2.5(i).

U. S. STEEL RESPONSE

U. S. Steel has reviewed the Quarterly Deviation and Compliance Monitoring Reports and its Environmental Management System and Environmental Incident records and has determined that the excursions identified above are not systemic, and are not maintenance related. Nonetheless, because U. S. Steel's goal is to achieve 100%, it has implemented corrective actions that are responsive to each of

these excursions to prevent the reoccurrence of such incidents. Our investigation, root cause analysis, and corrective actions for each of these incidents are summarized below:

Summary Self-Reported/EPA Coke Oven Processing Equipment Excursions			
Date	**Minutes**	**Root Cause Analysis**	**Corrective Action**
09-28-06	15	Unexpected shutdown of Booster No. 1 resulted in loss of suction to all batteries. This loss of suction caused the excessive emissions.	Stopped heating on No. 7 Battery. Inspected and repaired No. 1 Booster.
10-07-06	15	Hole in wall. Damper froze.	Inspect, repair and patch walls and coke side jambs. Repair damper. Retrain heaters and managers regarding temperature readings.
06-24-07	45	No. 2 COB was out of operation for repairs during this time. The oven chambers had to be pushed but were empty. The empty ovens were kept hot and were full of ambient air. The air burnt away the carbon buildup.	Inspected oven walls and floors. Spray and weld repairs.
09-15-07	15	Nitrogen pressure drop caused Boiler No. 9 to trip causing loss of steam resulting in lower speeds on Nos. 1 and 5 boosters, which resulted in loss of suction to the batteries.	Gas was cut on both Batteries Nos. 5 and 7. Investigated means of maintaining boiler house instrument air pressure. Investigate regulator for main plant nitrogen pressure.
12-18-07	15	Hole in oven wall; decarbonizing pipe behind oven.	Take oven out of service. Perform welds/repairs to affected oven.

PARAGRAPH NO. 22
USEPA ALLEGATION – COB NO. 2 – UNDERFIRE STACKS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports the following visible emissions exceedances at its No. 2 Coke Oven Battery underfire stack:

Date	Minutes in Violation	# of Violations
08-18-2006-09-30-2006	2556	426
10-01-2006-12-31-2006	5550	925
01-01-2007-03-31-2007	3864	644
04-01-2007-06-30-2007	2814	469
07-01-2007 - 09-30-2007	2574	429
10-01-2007-12-31-2007	2382	397

Visible emissions exceeding twenty percent (20%) opacity from the No. 2 Coke Oven Battery underfire stack are violations of 326 IAC 5-1-2 of the Indiana SIP and Title V Permit Condition 6.1 (a).

U. S. STEEL RESPONSE

As we discussed, U. S. Steel has developed short-term and long term corrective actions to address the opacity excursions from the coke oven battery underfire stacks. Please refer to Attachment F in which U. S. Steel provides a Compliance Plan to address the Underfire Stack Opacity. In addition, prior to USEPA's issuance of the NOV/FOV, U. S. Steel was negotiating resolution of the underfire stack opacity excursions with IDEM and refers USEPA to correspondence provided to IDEM regarding past corrective actions which is provided as Attachment G.

PARAGRAPH NO. 23
USEPA ALLEGATION – COB NO. 5 – UNDERFIRE STACKS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports the following visible emissions exceedances at its No. 5 Coke Oven Battery underfire stack:

Date	Minutes in	# of Violations
08-18-2006-09-30-2006	2796	466
10-01-2006-12-31-2006	5136	856
01-01-2007-03-31-2007	5640	940
04-01-2007-06-30-2007	5862	977

07-01-2007-09-30-2007	6624	1104
10-01-2007-12-31-2007	9324	1554

Visible emissions exceeding twenty percent (20%) opacity from the No. 5 Coke Oven Battery underfire stack are violations of 326 IAC 5-1-2 of the Indiana SIP and Title V Permit Condition 6.1 (a).

U. S. STEEL RESPONSE

Please refer to U. S. Steel's response to Paragraph No. 22 above.

PARAGRAPH NO. 24
USEPA ALLEGATION – COB NO. 7 – UNDERFIRE STACKS

U.S. Steel self-reported in its Quarterly Deviation and Compliance Monitoring Reports the following visible emissions exceedances at its No. 7 Coke Oven Battery underfire stack:

Date	Minutes in Violation	# of Violations
08-18-2006-09-30-2006	2592	432
10-01-2006-12-31-2006	5934	989
01-01-2007-03-31-2007	3852	642
04-01-2007-06-30-2007	7626	1271
07-01-2007-09-30-2007	8958	1493
10-01-2007-12-31-2007	6594	1099

Visible emissions exceeding twenty percent (20%) opacity from the No. 7 Coke Oven Battery underfire stack are violations of 326 IAC 5-1-2 of the Indiana SIP and Title V Permit Condition 6.1 (a).

U. S. STEEL RESPONSE

Please refer to U. S. Steel's response to Paragraph No. 22 above.

PARAGRAPH 25 - USEPA ALLEGATION – BLAST FURNACE NO. 4 ALLEGED MODIFICATION

U.S. Steel failed to apply for a major source construction permit and install Best Available Control Technology or achieve the Lowest Achievable Emission Reduction, depending on whether the area was in attainment or non-attainment, as required by APC-19 and 326 IAC 2-3 or 40 C.F.R. § 52.21 and 326 IAC 2-2 when it modified its No. 4 blast furnace in or around 1990. The increase in production resulting from changes made during this project, wh ich included upgrading the cooling system, caused an increase in emissions that exceed "significant" levels for sulfur dioxide (SO_2), particulate matter (specifically PM_{10}), carbon monoxide (CO), and nitrogen oxides.

U. S. STEEL RESPONSE:

We have reviewed the allegation above along with the list of repairs performed on Gary Works No. 4 blast furnace during the 1990 reline. We do not agree with USEPA's allegation that the reline was a major modification that caused a significant emissions increase, as the furnaces were capable of such production in the immediately prior years. When we discussed this allegation during our meeting, we indicated that the years immediately prior to the reline were not representative of the furnace's production capacity because of a significant downturn in the demand for steel and worker strikes that occurred during that time. For example, production on No. 4 Blast Furnace in 1983, well before the 1990 reline, the furnace produced 1,083,000 tons of iron; and in 1982, Blast Furnace No. 4 produced 1,045,000 tons of iron, which are both substantially greater than the 660,930 tons that the furnace produced in 1989, the year immediately prior to the reline. Because the demand for steel fluctuates and is very elastic, reviewing production data is not necessarily representative of a furnace's production capacity or what production rate a furnace can accommodate, especially at a multiple furnace operation like Gary Works. We note that in the Indiana SIP, the No. 4 Blast Furnace is rated at 4,800 tons per day which is based upon an annual production rate of 1,752,000 tons of iron. However, U. S. Steel has never produced at this capacity, yet for SIP development purposes, this is the value that is used since this is the maximum production rate of the furnace.

Furthermore, as noted above, Gary Works is a multiple furnace operation which means that the production of one furnace is not only dependent upon the market demand for steel, but is also dependent upon operations and availability of other furnaces. In a multiple furnace operation, U. S. Steel evaluates the market conditions of raw materials and operating costs to determine the optimum furnace operation.

Moreover, U. S. Steel does not agree that these repairs constitute "major modification" as defined in 326 IAC 2-3-1. Rather, they merely constitute a reline-in-kind, with the best available technology, and were intended to better protect the refractory in the furnace and are not production related. Whenever a furnace is relined, we identify weaknesses in the design and construction and employ the best available technology to eliminate or mitigate these weaknesses. Specifically, the improvements to the refractory system of the furnace were the utilization of the improved refractories that were available at the time of the reline (that were not available during the previous reline. Using silicon carbide, high-alumina brick, and a carbon hearth will not increase productivity of the furnace. These materials were designed to withstand the extreme conditions that exist inside any blast furnace. USEPA seems to claim that replacing the refractory with better refractory was a major modification resulting in increased production. We respectfully disagree with this assertion and would like to discuss how EPA came to such a conclusion. Improving the cooling system of the furnace by using a high-density plate arrangement and higher pressure water is simply designed to help protect the refractory lining and in no way is production related. The cooling system needed improvement since replacing shell plates during the project is definite indicator that previous refractory/cooling system was inadequate. The purpose of the lining and

cooling is to protect the shell. In short, if the shell is in need of replacement, improvements are required.

Finally, assuming *arguendo* that the reline were a "major modification," which it is not, U. S. Steel would like to discuss USEPA's allegation in which it determined that a "significant" emissions increase occurred for sulfur dioxide (SO_2), particulate matter (specifically PM_{10}), carbon monoxide (CO), and nitrogen oxides.

PARAGRAPH 26
USEPA ALLEGATION – BLAST FURNACE BLEEDER VALVES

U.S. Steel failed to identify the blast furnace bleeder valves as an emission unit, as that term is defined in 326 IAC 2-7-1, in its Title V permit application, in violation of Title V of the CAA and 40 C.F.R. §71.5.

U. S. STEEL RESPONSE

U. S. Steel respectfully disagrees that the blast furnace bleeder valves are separate emissions units, as that term is defined in 326 IAC 2-7-1. Specifically, bleeders are considered an integral part of the blast furnace and serve the safety function of relieving the pressure inside the furnace during times of start-up, shutdown, and malfunction. The bleeders are used when there is dangerous, excess pressure in the blast furnace. The bleeders are also used when a furnace is down for a period of time. For these reasons, U. S. Steel has not separately addressed the bleeders in its Title V permit application materials; nor has the Indiana Department of Environmental Management (IDEM) identified or regulated the bleeders separately from the blast furnaces. However, U. S. Steel recognizes that emissions from bleeder valves should be minimized while not compromising the safety of the vessel. Pursuant to our discussions on August 5th, U. S. Steel is providing you with an explanation as to why the bleeders open, how they are tracked, and corrective actions employed.

Reasons for Bleeder Openings

There are several potential causes for such bleeder openings. Anytime that the top pressure, be it perceived or actual, exceeds the bleeder opening set point the bleeders will open. Some of the possible reasons for this occurrence are provided below.

1) The furnace can sustain a slip. During a slip, the burden suddenly drops several feet causing a momentary spike in the top pressure that may exceed the Bleeder limit set point. Poor furnace permeability can create conditions under which the furnace may slip.
2) The furnace can incur a blow-through. During a blow-through, a direct channel forms up through the burden allowing the full force of the wind to pass directly to the top of the furnace. This sudden spike in the top pressure may exceed the Bleeder limit set point.

3) An equipment failure in the off gas cleaning system can cause an increase in the top pressure that may cause the top pressure to exceed the Bleeder limit set point. Examples would be a malfunction in the venturi scrubber or back pressure valve.
4) An equipment failure in the bleeder hydraulic system can cause an unintentional opening of the bleeders.
5) An instrumentation error can inadvertently trigger a Bleeder opening.

Tracking Bleeder Openings

All Bleeder openings, be they unintentional or planned outages, will be tracked through the U. S. Steel's internal PLC tracking system. However, tracking of such instances is not currently part of U. S. Steel's EMS. The tracking process will be automated and ready by October 1st, 2008. Process Control will program to alert operators every time a bleeder is opened, planned or unplanned. The operators will be required to record why the bleeder openings occur and the corrective action involved. This information will appear in U. S. Steel's daily internal reports. Additionally, U. S. Steel's Environmental Control will audit this information to make sure it's complete and accurate. The audit process will be on a daily frequency (Monday - Friday). This information will be used to identify any systemic problems.

Reporting of Emissions from Bleeder Valves

In addition, U. S. Steel reports the emissions of carbon monoxide, $PM_{2.5}$, and PM_{10} from the bleeder valves as part of its STEPS emission reports. U. S. Steel uses emission factors from FIRE (EF-45) when completing the emission reports. These reports are provided to IDEM on an annual basis as required by Rule 6 of Article 2 of IDEM's Air Permit Review rules (326 IAC 2-6). As noted above, U. S. Steel has not separately identified the bleeder valves in its Title V application because the bleeder valves are an integral part of the blast furnace proper. Even if the emissions were to be segregated from the blast furnace, such emissions would be considered insignificant according to 326 IAC 2-7-1(21).

Corrective Actions/Procedures for Controlling Bleeder Openings

Corrective actions/procedures regarding bleeder occurrences are controlled and limited by following established written operating procedures that govern the operation aspects of the furnace. (As we discussed, bleeder openings are generally undesirable operating conditions.)

To better respond to your questions regarding the bleeder valve opening occurrences, we reviewed the history of the bleeder openings and determined that a few, isolated incidents have skewed the data to reveal occurrences which EPA stated are not representative of the industry. Our review of the bleeder valve occurrences indicates that may bleeder valve openings occurred on the same day, or within a two or three day time period, as a result of the same malfunction or furnace

issue. Such occurrences are not typical and result in showing an unusually high occurrence of bleeder openings. For example, U. S. Steel had a total of 39 bleeder opening occurrences on Blast Furnace No. 4 for the entire year of 2005. The following year, 2006, U. S. Steel had 123 bleeder opening occurrences, with 60 of such instances occurring between May 4th and May 8th. Unfortunately, the isolated issues that U. S. Steel faced during those five days skew the data. We note that the valves only open for relatively short periods of time, i.e., they do not remain open during the entire time of an upset condition. Therefore, during an upset condition, the valves can open and close several times during the same hour. However, each time the valve is opened, it is treated as a separate occurrence, regardless if the valve opening is the result of the same upset condition.

PARAGRAPH 27
USEPA ALLEGATION – BLAST FURNACE NO. 14 – CASTING OPERATIONS

U.S. Steel removes suction from one tap hole and iron dam when it opens another tap hole. U.S. Steel failed to utilize the No. 14 blast furnace casthouse baghouse to control emissions from No. 14 casting operations, including the No. 3 tap hole and iron dam, while the casthouse was in operation, in violation of 326 IAC 2-7-6(6) and the Title V permit at D.7.9(a)(2).

U. S. STEEL RESPONSE

The following is a description of the Automatic Damper System used in the control equipment on #14 Blast Furnace Casthouse:

The PCI Damper System is designed to regulate the emissions off of the casthouse by opening and closing the dampers according to the current casting conditions. The system on each taphole contains one isolation damper and three smaller dampers. The three smaller dampers are located: (1) over the taphole face, (2) next to the skimmer block on the trough, and (3) next to or adjacent to the iron tilter. During the opening and closing of a taphole the damper system switches to "Double Duty" mode. In Double Duty mode the skimmer and tilter dampers are closed, leaving only the taphole damper open. This allows for increased suction over the taphole. After the taphole has been opened, the damper system switches to "Duty" mode. In Duty mode, all three Dampers are open, allowing an even suction across the taphole, skimmer, and iron runner. When a taphole is placed out of service, the damper is placed into "Shutdown" mode. This mode closes all the dampers to the out of service taphole, therefore directing all flow to the taphole(s) in service. At anytime, the Damper system can be placed in "Manual" mode and any damper can be adjusted according to the needs of the casthouse crew.

Additional casting criteria governing the operation of #14 Blast Furnace Baghouse and the damper positions.

- Only two tapholes are allowed to be casting at any one time.
- If there are two holes casting then, the remaining non-casting hole must have its associated isolation damper closed.

- Anytime that a hole is casting its isolation damper and taphole damper must be open.

PARAGRAPH 28
USEPA ALLEGATION – BLAST FURNACE FLARES

In response to a December 7, 2007, Section 114 of the CAA Information Request, U. S. Steel provided information demonstrating that it failed to ensure a pilot flame was always present at the blast furnace gas flares on at least 75 occasions in 2005, 216 occasions in 2006, and 118 occasions in 2007, resulting in the emission of un-combusted carbon monoxide into the atmosphere in violation of Title V Permit Condition D.7.6(6).

U. S. STEEL RESPONSE:

As we discussed, U. S. Steel tracks such instances and prior to receiving the Information Request and prior to receiving the NOV/FOV, based upon our own analysis, we began implementing corrective actions on the blast furnace flares. The corrective action involved replacing the pilot systems. The pilot systems consist of four pilots at the top of each of the three stacks (BFG Stack Nos. 1, 2, and 4.) Prior to the implementing the corrective actions, there was no means of remotely monitoring the pilot status. However, the pilots were checked regularly. If the pilot was determined to be out by visual inspection then it had to be relit from the base of the stack. If the pilot was determined to be out by visual inspection then it had to be relit from the base of the stack. The pilot flames are now continuously monitored through a PLC and thermocouple system. The pilot flames now go into an automatic relighting sequence if any one or more of the pilots go out. The status of the pilots is monitored and recorded in the PI system. There is now a deck talk alarm in the Load Dispatchers office to call attention to problems with the pilots systems. We replaced the No. 1 stack and put it into service in August 2007. The No. 4 Stack was replaced and put into service in November 2007. Finally, the No. 2 Stack was most recently completed and put back into service in August 2008.

PARAGRAPH 29
USEPA ALLEGATION – SUBPART V EQUIPMENT REPAIRS

Based on EPA's review of leak records for equipment subject to 40 C.F.R. 61 Subpart V, the following table outlines the equipment that failed to have a first attempt at repair made within 5 days;

Date	First Attempt	Unit ID	Tag No.
3/21/05	3/31/05	Dist. Sump	-
6/1/05	6/11/05	D-6	-
6/12/06	6/19/05	T-304C	-
. 8/14/06	8/22/06	Dist. Sump	-
1/2/07	1/16/07	E-422	-
1/3/07	1/16/07	T-312 Valve	10141

U.S. Steel's failure to make first attempts at repair within 5 days as outlined in the above table is a violation of 40 C.F.R. § 61.242-2(c)(2) and Title V Permit Condition D.3.3.

U. S. STEEL RESPONSE:

U. S. Steel has reviewed USEPA's allegations along with U. S. Steel's internal EMS, and believes no violations have occurred for the reasons explained below. U. S. Steel is responding to each incident individually, as identified in the above table:

Item dated 3/21/05, Distillation Sump:

EPA claims that first attempt at repair was made on March 31, 2005 for this leak which was found visually by the U. S. Steel Gas Blanketing Technician (GBT). The log from the GBT shows that he made first attempts at repair on March 21, 2005, when he discovered the leak. The GBT cleaned and patched the leak with RTV material until the permanent repairs could be made, and although not stated in his notes, this is standard practice. The date cited by EPA as the date of first attempt of repair, March 31, 2005, is actually the date that the *final repairs* were made.

Furthermore, EPA has incorrectly cited U. S. Steel for a violation on this unit under 40 CFR 61, Subpart V §61.242-2(c)(2). Only pumps in benzene service are subject to 40 CFR 61, Subpart V §61.242-2(c)(2). This sump is only subject to the standards in 40 CFR 61, Subpart L §61.133 and is not subject to any of the standards in 40 CFR 61, Subpart V. The benzene (VHAP) levels in this sump are well below 10%. Pure product light oil is the only material in this facility that contains above 10% benzene/VHAP.

Item dated 6/1/05, D-6 Tar Decanter:

EPA claims that first attempt at repair was made on June 1, 2005 for this leak which was found visually by the US Steel Gas Blanketing Technician (GBT). The log from the GBT shows that he made first attempts at repair on June 1, 2005 when he discovered the leak. Consistent with U. S. Steel's standard practice, the GBT cleaned and patched the leak with RTV material until the permanent repairs could be made. The date cited by EPA as the date of first attempt of repair, June 11, 2005, is actually the date that the *final repairs* were made.

Furthermore, EPA has cited U. S. Steel for a violation on this unit under 40 CFR 61, Subpart V §61.242-2(c)(2). Only pumps in benzene service are subject to 40 CFR 61, Subpart V §61.242-2(c)(2). This decanter is only subject to the standards in 40 CFR 61, Subpart L §61.132 and is not subject to any of the standards in 40 CFR 61, Subpart V. The benzene (VHAP) levels in this decanter are well below 10%.

Item dated 6/12/06, T-304C Tar Tank:

EPA claims that first attempt at repair was made on 6/12/06 for this leak which was found visually by the US Steel Gas Blanketing Technician (GBT). The log from the GBT shows that he made first attempts at repair on 6/12/06 when he discovered the leak. See attached log from his files. After several attempts to tighten the seal at the base of the conservation vent, the GBT cleaned and patched the leak with RTV material until the permanent repairs could be made, and although not stated in his notes, this is standard practice. The date cited by EPA as the date of first attempt of repair, 6/19/06, is actually the date that the final repairs were made. [The NOV/FOV apparently has a typographical error on the date which shows 6/19/05.]

Furthermore, USEPA has cited U. S. Steel for a violation on this unit under 40 CFR 61, Subpart V §61.242-2(c)(2). Only pumps in benzene service are subject to 40 CFR 61, Subpart V §61.242-2(c)(2). The leak occurred around the base of the conservation vent on top of a tar tank. This tank is only subject to the standards in 40 CFR 61, Subpart L §61.132 and is not subject to any of the standards in 40 CFR 61, Subpart V. The benzene (VHAP) levels in this tank are well below 10.

Item dated 8/14/06, Distillation Sump:

USEPA claims that first attempt at repair was made on 8/14/06 for this leak which was found visually by the US Steel Gas Blanketing Technician (GBT). The log from the GBT shows that he made first attempts at repair on 8/14/06 when he discovered the leak. See attached log from his files. The GBT cleaned and patched the leak with RTV material until the permanent repairs could be made, and although not stated in his notes, this is standard practice. The date cited by EPA as the date of first attempt of repair, 8/22/06, is actually the date that the final repairs were made. Further, EPA has cited US Steel for a violation on this unit under 40 CFR 61, Subpart V §61.242-2(c)(2). Only pumps in benzene service are subject to 40 CFR 61, Subpart V §61.242-2(c)(2). This sump is only subject to the standards in 40 CFR 61, Subpart L §61.133 and is not subject to any of the standards in 40 CFR 61, Subpart V. The benzene (VHAP) levels in this sump are well below 10%.

Item dated 1/2/07, E-422 Exchanger:

USEPA claims that first attempt at repair was made on 1/16/07 for this presumed leak. The log from the GBT shows that on 1/16/07 he discovered material seepage under the fiberglassed area on the E-422 exchanger unit. The area was not actually leaking, he was simply noting that the area needed to be re-fiberglassed before a leak began. This was not a leak. Furthermoer, EPA has cited US Steel for a violation on this unit under 40 CFR 61, Subpart V §61.242-2(c)(2). Only pumps in benzene service are subject to 40 CFR 61, Subpart V §61.242-2(c)(2). The fiberglassed area on this exchanger was on the shell and not on any of the components subject to 40 CFR 61, Subpart V; i.e., the incident is not a Subpart V incident.

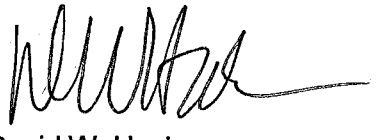
Item dated 1/3/07, T-312 Product Light Oil Tank:

USEPA claims that first attempt at repair was made on January 3, 2007 for this defect. The log from the GBT shows that on 1/3/07 he discovered that when the water drain valve was positioned between fully opened and fully closed, it would leak. The valve did not leak when in the fully opened position or the fully closed position. This valve is normally kept in the closed position and was not actively leaking. The GBT kept the valve in the fully closed position until the valve was replaced by the maintenance department on January 16, 2007. Furthermore, USEPA has cited U. S. Steel for a violation on this unit under 40 CFR 61, Subpart V §61.242-2(c)(2). Only pumps in benzene service are subject to 40 CFR 61, Subpart V §61.242-2(c)(2). This valve is subject to the standards in 40 CFR 61, Subpart V §61.242-7 not §61.242-2.

For these reasons, U. S. Steel does not believe that any Subpart V equipment repair violations occurred and that each incident was addressed as required by applicable regulations.

U. S. Steel appreciates the opportunity to respond to the NOV/FOV issued by USEPA and we look forward to resolving any outstanding issues expeditiously. We especially appreciate your attention and cooperation. To further facilitate discussions and to promptly address any issues that USEPA or IDEM may have regarding this correspondence or the allegations addressed in the NOV/FOV, U. S. Steel respectfully requests that that we meet in Merrillville or Chicago during the last week of September. I will be contacting you within the next week to determine if a mutually acceptable date can be arranged. In the interim, should you have any questions regarding this correspondence, please contact me.

Very truly yours,



David W. Hacker

cc: Janusz Johnson (IDEM)
Tishie Woodwell (USS)
Kenneth Mentzel (USS)

ATTACHMENT A

ATTACHMENT A
Summary Self-Reported Blast Furnace Casthouse Roof Excursions

Date	Opacity%	Root Cause Analysis	Corrective Action
#8 02-06-07 EI #3842	25.4	U. S. Steel has verified that at the time the emissions were observed, the #3 position gate had just been knocked out and iron had begun to flow into the #3 sub, which was in rotation – not recently added. Flame suppression was present but we cannot verify if the gas flow was adequate. We also cannot verify the extent to which the tap hole clay contributed to the violation, but our investigation has lead us to believe that standard operating procedure was not followed.	• Oral review of procedure with Keepers. • Revise/refine this procedure and contact all Keepers. • Review flame suppression inspection records & performance with inspectors.
#14 (2) 03-14-07 EI #3886	21.2, 34.2	U. S. Steel has verified that at the time the emissions were observed the furnace was preparing for an outage in order to make repairs to the north skip system. Preparing for an outage requires that the furnace be drained to the greatest degree possible. We believe that environmental compliance could have been maintained if the evacuation system had been operating normally.	• Repair the damage to the #2 fan shaft & return the fan to service. Replace split bearing with original one-piece design. • Evaluate the fan & motor alarm points (temperature & vibration) and set trip points to protect the equipment from severe damage. • Submit Engineering request to evaluate Emission capture system capabilities. • Complete Engineering study
#8 08-21-07 EI #4068	21.5	U. S. Steel has verified that during a routine monitoring session of the No. 8 Blast Furnace Casthouse, the furnace tap hole started to blow unusually early in its cast. At the time iron was still casting into the first ladle. Within approximately a minute of the initial blow the mud gun was swung and 1 cu. ft. of clay was pushed. Concurrently the second & third gates were knocked out. As iron entered the cold third sub, emissions were generated, but there was insufficient time to turn on the flame suppression to this ladle.	• Contact all casthouse crews on the procedure governing natural gas suppression.
#6		U. S. Steel has verified that during a routine monitoring session of the No. 6 Blast Furnace top, the furnace was in the process of coming off for a production curtailment. A review of the PI charts at the time of the PM-10 indicates that the PCI controlled flow rate	• Tune to tune the coal injection control loop to reduce the standard deviation to the same level that we have on #8 Furnace

08-28-07 **EI #4075**	**21.7**	overshot the set point and did not stabilize as quickly as expected. .	• PCI control engineers to look at the control loop and tighten the process control to reduce the standard deviation. • Inspect top charging equipment. • Inspect entire coal feed system. • Raise PCI distribution pressure to provide a greater differential to blast pressure improving combustion at the tuyere level. • Remove coal injection & replace with oil Operations & Tech Group
#8 **10-03-07** **EI #4127**	**22.9**	U. S. Steel has verified that the emissions were generated when clay entered the iron trough and burned. The clay fell out of the back of the mud gun as the dolly was pulled back to break the seal after the stop. A subsequent examination of the mud gun found approximately 1/2 a brick of clay pieces, likely comprised of several different bricks, lying behind the dolly.	• The mud gun loading procedure was reviewed and modified as necessary. • Develop interim procedure on properly loading and cleaning the mud gun. • Initiate shift manager conversations with casthouse employees on the revised procedures. • Retrain employees
#8 **10-23-07** **EI # 4141**	**40.6**	U. S. Steel has verified that the emissions observed during the Missed Stop were due to high wind and that the operators failed to follow standard procedure by not installing a sleeve over the mud gun.	• Contact furnace crews on this incident and this procedure stressing the importance of following these keys instructions. • Add protective cover over the push button that activates the dolly backward in order to delineate it from the button that activates the dolly forward to extrude the clay.
#4 (2) **11-14-07** **EI #4160**	**29.6, 35.1**	U, S. Steel has verified that the design of tilter cover is flawed and allows emissions to escape even when the furnace is operating correctly.	• Modify the tilter cover N2 supply so that it provides coverage of the entire tilter without forcing the emissions out. • Re-pipe the nitrogen supply system & header, eliminating unnecessary valves in order to simplify the operation & increase the volume. • Add nitrogen flow PI point • Orally instruct the furnace

			trough crew to utilize k-wool on tilter cover openings until such time as the cover can be modified.

ATTACHMENT B

ATTACHMENT B
Summary Self-Reported No. 1 BOP Shop Roof Excursions

Date	Opacity%	Root Cause Analysis	Corrective Action
12-19-06 EI #3811	21.7	U. S. Steel has verified that the heat was at Evelyn furnace. The observed emission were smoke from slopped material that was not be captured by the gas cleaner duct work. The operator used the slop control button as a countermeasure to mitigate the slopping.	• Check on scrap to ensure that there was no contamination that could cause the slopping (excess concrete or iron, a cylinder, etc.). • Visually check lime feed system to ensure that there is no contamination and no water present. • Take samples for lab assessment. • Obtain lab results from flux handling system sampling. • Inspect gas cleaning system including elbows and dampers. • Review heat logs to look for an trend that may have contributed to slopping. • Review manganese to carbon ratio and relationship to lance height. • Verify scrap slab use. • Recheck flux bins to look for evidence of flux cross contamination in the storage bins. • Change request #41118 will change the hardcoded level I and II logic to ensure that the lance is pulled if flux has not been added at the 20% mark of the blow. It will also give a warning to the operator if the flux is not in at 15% of the blow. • Add camera to observe BOP roof monitor. Investigate possibility of having camera transmit to each pulpit and not just the Steel vision center. • Observe furnace operations to look for trends in the slopping issue.
12-27-06 EI #3815	21.7 32.9	U. S. Steel has verified that the emissions were due to the fact that the Casbel did not penetrate the foamy slag layer and reach the steel. Two bags of aluminum were added to the bell, but remained in the slag layer and burned. The bell was lowered and subsequent aluminum additions were successful.	• Replace cover on Daisy's Casbel hood. • Fix cover on Daisy Casbel alloy to chute to get a better seal. Also check dampers for all Casbel units. • Review CAS-OB SOPs/SJP with all Melters and Managers • Add operating procedures on casbel to Melter's Academy program. • Add slag (thickness)measurement equipment on the casbel operation to reduce the subjective decision on bell height in the ladle. • Install a pitside camera to observe and record Casbell operations.

02-12-07 **EI #3845**	**22.08**	U. S. Steel has verified the emissions were due to a reaction in Mary's hood area which occurred immediately after the lance was reinserted upon resuming the blow. A casbell flareup on the Evelyn furnace may have contributed to a small extent.	• Add PI tag for nitrogen flow to lance for future investigations. -Pi tags for Nitrogen flow is LGSPNIT.m for Mary, SLGSPNIT.E for Evelyn SLGSPNIT.d for Daisy. Pi tags for oxygen is OXYFLOW.m for Mary OXYFLOW.e for evelyn and OXYFLOW.d for Daisy • Fix IONIT cameras to ensure that lance ports can be viewed on all three vessels. • Review gas makeup and flowrates during the initial stages of the reblow. • Add process change to increase lance height to 120 inches at the start of gas flow when reinserting lance. • Modify procedure to direct Melter and crew to continue blow until the 15 minute mark before stopping blow for shop timing issues. • Investigate the possibility of extending the percentage of blow where nitrogen is introduced prior to oxygen upon lance reinsertion. • Enter a Request for Engineering Services for modification of the hood lance port area. The modification will reduce the open area of the lance port to assist with the control of emissions from the furnace. • Investigate and trial a lower oxygen flow rate to the lance during reinsertion.
02-23-07 **EI #3860**	**20.8**	U. S. Steel has verified that the emissions were due to puffing from Evelyn's furnace lance port Which was likely the result of CO gas combustion. U, S Steel has verified that the emissions were the result of inadequate	• Review hood draft information from PI system. • Check duct system for leaks and possible sources of extraneous air. • Review heat log to look for abnormal conditions. • Check system elbows for buildup. • Put an OCS representative in the shop while reading to assist with interpretation of roof monitor emissions. • Check the condition of the quencher spray nozzle against design parameters. • Seal leaks between the breach and upper hood. • Enter a Request for Engineering Services for modification of the hood lance port area.. • Check pressure transmitter calibration. • Modify ladle operating procedures.

04-10-07 **EI #3910** **EI #3911** **EI #3912**		ladle inspections.	• Develop an interim thermography program to check the iron ladles. • Develop a permanent comprehensive thermography program to check iron ladles. • Review gunning practices. This will involve looking at when to gun, and when to shotcast. • Research to find the best gunning and shotcast materials for use in our process. • Develop a process to ensure that iron ladles are inspected and maintained on a routine basis.
	20.42 **45.83** **24.20**	U. S. Steel has been unable to determine the cause of the emissions though we have verified that the furnaces were operating correctly. Possible sources include the charge aisle and/or bull dozer activity at the Daisy furnace.	• Check gas cleaner draft on M and E through visual observation. . • Connect camera (to observe roof monitor) to IONIT recording . • Equip the OCS shop representative with a BOP radio to assist communication and information transfer.
10-15-07 **EI #4133**	**24.2**		

ATTACHMENT C

United States Steel Corporation
Gary Works

---

40 CFR 63 Subpart FFFFF
National Emission Standards for Hazardous Air Pollutants
For Integrated Iron and Steel Manufacturing Facilities

❑ Operation and Maintenance Plan

Applicable to the following:

- **Processes:**
  - **No. 4 Blast Furnace and flame suppression system**
  - **No. 6 Blast Furnace and flame suppression system**
  - **No. 8 Blast Furnace and flame suppression system**
  - **No. 14 Blast Furnace**

- **Capture Systems:**
  - **No. 14 Blast Furnace Casthouse Baghouse hoods, dampers, ductwork, and fans**

- **Control Equipment:**
  - **No. 14 Blast Furnace Casthouse Baghouse (bag leak detection system only)**

Volume 1 of 1
Revision No. 2
Date: 8/05/08

Table of Contents

1.0 Introduction

1.1 Background

National Emissions Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing were promulgated under 40 CFR 63 Subpart FFFFF on May 20, 2003. The standards specify the following as affected facilities under 40 CFR 63 Subpart FFFFF:

- sinter plants
- blast furnaces
- basic oxygen process furnaces (BOPF)

The standards address emissions from each of the following emission sources:

- Sinter plant windbox exhaust
- Sinter plant discharge end
- Blast furnace casthouse
- Basic oxygen process furnace (BOPF)
- BOPF shop hot metal transfer
- BOPF shop hot metal desulfurization
- BOPF shop hot metal slag skimming
- BOPF shop ladle metallurgy

1.2 Purpose

These standards require that certain plans be developed and implemented by May 22, 2006. The purpose of this document is to comply with the requirements of 40 CFR 63 Subparts A and FFFFF to develop and implement the following plans:

- Operation and maintenance plan
- Site-specific monitoring plan
- Startup, shutdown and malfunction plan

1.3 Applicability

1.3(a) Operation and Maintenance Plan

40 CFR 63.7800 requires that a written Operation and Maintenance plan be developed and implemented for the following particulate emission capture systems* and particulate emission control devices specified in 40 CFR 63.7790(b):

- Sinter plant discharge end particulate emission capture systems

- Blast furnace casthouse particulate emission capture systems
- BOPF secondary particulate emission capture systems
- BOPF venturi scrubber primary particulate emission control systems
- BOPF electrostatic precipitator primary particulate emission control systems

* For purposes of this plan, "emission capture system" includes emission capture hoods, ductwork, dampers and fans important to the efficient collection and transport of particulate emissions to a particulate emission control device. The particulate emission control device is not part of the particulate emission capture system.

The Operations and Maintenance Plan for the No. 14 Blast Furnace capture system and baghouse is included in this document.

1.3(b) Site-Specific Monitoring Plan

40 CFR 63.7831(a) requires that a Site-Specific Monitoring Plan be developed and implemented for each Continuous Parametric Monitoring System (CPMS) required in 40 CFR 63.7830. Therefore, each CPMS associated with each particulate emission capture system and each particulate emission control device required to have an Operation and Maintenance Plan, listed in 1.3(a) above, is also required to have a Site-Specific Monitoring Plan.

The Site-Specific Monitoring Plan is not included in this document. It is included in a separate document.

1.3(c) Startup, Shutdown and Malfunction Plans

40 CFR 63.7810(c) requires that a written Startup, Shutdown and Malfunction Plan be developed and implemented according to the requirements of 40 CFR 63.6(e)(3), which states in part:

> *"...The owner or operator of an affected source must develop and implement a written startup, shutdown and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard."*

Therefore, the Startup, Shutdown and Malfunction Plan must address all process, particulate emission control equipment and monitoring equipment used to comply with the standard.

The Startup, Shutdown, and Shutdown Plan is not included in this document. It is included in a separate document.

2.0 Operation and Maintenance Plans

2.1 Scope

The following particulate emission capture systems and particulate emission control devices are covered by this plan:

- Particulate emission capture systems
  - No. 14 Blast Furnace Casthouse Baghouse hoods, dampers, ductwork, and fans

- Particulate emission control devices
  - No. 14 Blast Furnace Casthouse Baghouse (bag leak detection system only)

2.1.1 The purpose of this plan is to ensure that the above are operated and maintained in a manner consistent with good air pollution control practices. (63.7800(a))

2.1.2 Definitions

2.1.2.1 Capture systems includes the hood, dampers, ductwork, and fans.

2.2 Plan Elements

2.2.1 Equipment inspection of capture systems for No. 14 Blast Furnace Casthouse Baghouse (63.7800(b)(1))

Equipment	Inspecting Frequency	Inspecting Department	Recording Method	Regulatory Citation
Ductwork (external)	Monthly	Maintenance	Title V System	63.7800(b)(1)
Hoods	Monthly	Maintenance	Title V System	63.7800(b)(1)
Pressure Sensors	Monthly	Maintenance	Title V System	63.7800(b)(1)
Dampers and Damper Switches	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Exterior Integrity	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Bearings and Couplings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Motors Bearings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Housing and Seals	Monthly	Maintenance	Title V System	63.7800(b)(1)

Temperature Check	Monthly	Maintenance	Title V System	63.7800(b)(1)

2.2.1.1 All deficiencies found during inspections listed in the above table such as holes, corrosion, deformation, broken drive shafts or other conditions affecting performance will be recorded on existing inspection forms. Corrective action will be completed before the next scheduled inspection.

2.2.2 Operating Limits for No. 14 Blast Furnace Casthouse Baghouse (63.7800(b)(3))

Operating Parameter	Recording Method	Averaging Frequency	Regulatory Citation	Operating Limits
Fan amps	Continuous	hourly average	63.7800(b)(3)	Fan No. 1 >= 102
				Fan No. 2 >= 125
Damper positions	Continuous	N/A	63.7800(b)(3)	See table below

Damper Positions

Hole Casting	Furnace	Cast Hole	Tilt Runner	Hole	Skimmer	Isolation
No. 1	Full Wind	Opened	Closed	Open	Closed	Open
No. 1	Full Wind	Opened	Open	Open	Closed	Open
No. 1	Full Wind	Opened	Closed	Open	Open	Open
No. 1	Full Wind	Opened	Open	Open	Open	Open
No. 1	Full Wind	Slag	Closed	Open	Closed	Open
No. 1	Full Wind	Slag	Open	Open	Closed	Open
No. 1	Full Wind	Slag	Closed	Open	Open	Open
No. 1	Full Wind	Slag	Open	Open	Open	Open
No. 1	Full Wind	Closed	Any	Any	Any	Any
No. 1	Slack Blast	Opened	Closed	Open	Closed	Open
No. 1	Slack Blast	Opened	Open	Open	Closed	Open
No. 1	Slack Blast	Opened	Closed	Open	Open	Open
No. 1	Slack Blast	Opened	Open	Open	Open	Open
No. 1	Slack Blast	Slag	Closed	Open	Closed	Open
No. 1	Slack Blast	Slag	Open	Open	Closed	Open
No. 1	Slack Blast	Slag	Closed	Open	Open	Open
No. 1	Slack Blast	Slag	Open	Open	Open	Open
No. 1	Slack Blast	Closed	Any	Any	Any	Any
No. 1	Blast Off	Any	Any	Any	Any	Any
No. 1	Full Wind	Opened	Closed	Open	Closed	Closed
No. 1	Full Wind	Opened	Closed	Closed	Closed	Opened

Hole Casting	Furnace	Cast Hole	Tilt Runner	Hole	Skimmer	Isolation
No. 2	Full Wind	Opened	Closed	Open	Closed	Open
No. 2	Full Wind	Opened	Open	Open	Closed	Open
No. 2	Full Wind	Opened	Closed	Open	Open	Open
No. 2	Full Wind	Opened	Open	Open	Open	Open
No. 2	Full Wind	Slag	Closed	Open	Closed	Open
No. 2	Full Wind	Slag	Open	Open	Closed	Open
No. 2	Full Wind	Slag	Closed	Open	Open	Open
No. 2	Full Wind	Slag	Open	Open	Open	Open
No. 2	Full Wind	Closed	Any	Any	Any	Any
No. 2	Slack Blast	Opened	Closed	Open	Closed	Open
No. 2	Slack Blast	Opened	Open	Open	Closed	Open
No. 2	Slack Blast	Opened	Closed	Open	Open	Open
No. 2	Slack Blast	Opened	Open	Open	Open	Open
No. 2	Slack Blast	Slag	Closed	Open	Closed	Open
No. 2	Slack Blast	Slag	Open	Open	Closed	Open
No. 2	Slack Blast	Slag	Closed	Open	Open	Open
No. 2	Slack Blast	Slag	Open	Open	Open	Open
No. 2	Slack Blast	Closed	Any	Any	Any	Any
No. 2	Blast Off	Any	Any	Any	Any	Any
No. 2	Full Wind	Opened	Closed	Open	Closed	Closed
No. 2	Full Wind	Opened	Closed	Closed	Closed	Opened

Hole Casting	Furnace	Cast Hole	Tilt Runner	Hole	Skimmer	Isolation
No. 3	Full Wind	Opened	Closed	Open	Closed	Open
No. 3	Full Wind	Opened	Open	Open	Closed	Open
No. 3	Full Wind	Opened	Closed	Open	Open	Open
No. 3	Full Wind	Opened	Open	Open	Open	Open
No. 3	Full Wind	Slag	Closed	Open	Closed	Open
No. 3	Full Wind	Slag	Open	Open	Closed	Open
No. 3	Full Wind	Slag	Closed	Open	Open	Open
No. 3	Full Wind	Slag	Open	Open	Open	Open
No. 3	Full Wind	Closed	Any	Any	Any	Any
No. 3	Slack Blast	Opened	Closed	Open	Closed	Open
No. 3	Slack Blast	Opened	Open	Open	Closed	Open
No. 3	Slack Blast	Opened	Closed	Open	Open	Open
No. 3	Slack Blast	Opened	Open	Open	Open	Open
No. 3	Slack Blast	Slag	Closed	Open	Closed	Open
No. 3	Slack Blast	Slag	Open	Open	Closed	Open
No. 3	Slack Blast	Slag	Closed	Open	Open	Open
No. 3	Slack Blast	Slag	Open	Open	Open	Open
No. 3	Slack Blast	Closed	Any	Any	Any	Any
No. 3	Blast Off	Any	Any	Any	Any	Any
No. 3	Full Wind	Opened	Closed	Open	Closed	Closed
No. 3	Full Wind	Opened	Closed	Closed	Closed	Opened

The following is a description of the Automatic Damper System used in the control equipment on #14 Blast Furnace Casthouse. The PCI Damper System is designed to regulate the emissions off of the casthouse by opening and closing the dampers according to the current casting conditions. The system on each taphole contains one isolation damper and three smaller dampers. The three smaller dampers are located: (1) over the taphole face, (2) next to the skimmer block on the trough, and (3) next to or adjacent to the iron tilter. During the opening and closing of a taphole the damper system switches to "Double Duty" mode. In Double Duty mode the skimmer and tilter dampers are closed, leaving only the taphole damper open. This allows for increased suction over the taphole. After the taphole has been opened, the damper system switches to "Duty" mode. In Duty mode, all three Dampers are open, allowing an even suction across the taphole, skimmer, and iron runner. When a taphole is placed out of service, the damper is placed into "Shutdown" mode. This mode closes all the dampers to the out of service taphole, therefore directing all flow to the taphole(s) in service. At anytime, the Damper system can be placed in "Manual" mode and any damper can be adjusted according to the needs of the casthouse crew.

*Operating Limits were set during the most recent Performance Test.
* Additional casting criteria governing the operation of #14 Blast Furnace Baghouse and the damper positions.

- Only two tapholes are allowed to be casting at any one time.

- If there are two holes casting then, the remaining non-casting hole must have its associated isolation damper closed.
- Anytime that a hole is casting its isolation damper and taphole damper must be open.

2.2.2.1 The Gary Works No. 14 Blast Furnace consists of three tap holes. In general, hot metal is always cast from at least one tap hole. It is also common that hot metal is cast from two tap holes.

2.2.2.2 Particulate emissions generated during casting at the trough and tilting runners are captured, conveyed, and collected in a pulse-jet Wheelabrator baghouse.

2.2.2.3 Description of capture system design will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.2.4 Description of the capture system operating during production will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.2.5 The rationale for why the operating parameter (fan amps measuring system) was chosen is because it is currently being measured. (63.7800(b)(3)(iii))

2.2.2.6 Description of each selected operating limit parameter will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.2.7 Description of method used to monitor parameter will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.2.8 Data used to set the value or settings for the parameter for each process configuration will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.3 Corrective action (CA) procedures for bag leak detectors (63.7800(b)(4))

2.2.3.1 Bag leak detectors are installed on the No. 14 Blast Furnace Casthouse Baghouse.

Bag Leak Detector Alarm Response	**Response Action**	**Corrective Action (CA) Responsibilities**	**Recording Method**	**Regulatory Citation**
Within 1 hour	Initiate CA to determine the cause of the alarm.	Maintenance	Title V System	63.7800(b)(4)
Within 24 hours	Initiate CA to correct the cause of the problem.	Maintenance	Title V System	63.7800(b)(4)

As soon as practicable	Complete CA.	Maintenance	TitleV System	63.7800(b)(4)

2.2.4 Inspections specific to baghouses (63.7830(b)(4)(i)-(viii))

Baghouse Equipment	Inspection Frequency	Inspection Task	Recording Method	Regulatory Citation
Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.	Daily	Maintenance	Title V System	63.7830(b)(1)
Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.	Weekly	Maintenance	Title V System	63.7830(b)(2)
Check the compressed air supply for pulse-jet baghouses.	Daily	Maintenance	Title V System	63.7830(b)(3)
Monitor cleaning cycles to ensure proper operation using an appropriate methodology.	Daily	Maintenance	Title V System	63.7830(b)(4)
Check bag cleaning mechanisms for proper functioning using an appropriate methodology.	Monthly	Maintenance	Title V System	63.7830(b)(5)
Confirm the physical integrity of the baghouse through visual inspections of the baghouse interior for air leaks.	Quarterly	Maintenance	Title V System	63.7830(b)(7)

Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors or equivalent means.	Quarterly	Maintenance	Title V System	63.7830(b)(8)

3.0 Plan Maintenance, Recordkeeping and Reporting

3.1 Initial plan requirements

- The Operation and Maintenance Plan must be developed and implemented by May 22, 2006.
- Failure to meet any condition in a plan is a deviation and must be reported as such in your periodic deviation report.

3.2 Plan revisions

- The O & M Plan may be revised at any time without permitting agency notification.

3.3 Recordkeeping

- You must keep all current plans, superceded plans and all information necessary to demonstrate that you have complied with each plan requirement on-site for a period of at least 5 years. The first three years the information must be kept on-site and the last two years the information can be stored off-site.

United States Steel Corporation
Gary Works

---

40 CFR 63 Subpart FFFFF
National Emission Standards for Hazardous Air Pollutants
For Integrated Iron and Steel Manufacturing Facilities

☐ Operation and Maintenance Plan

Applicable to the following:

- ☐ **Processes:**
  - **No. 1 BOP Daisy BOP Vessel**
  - **No. 1 BOP Evelyn BOP Vessel**
  - **No. 1 BOP Mary BOP Vessel**

- ☐ **Capture Systems:**
  - **No. 1 BOP Daisy BOP Vessel hoods, dampers, ductwork, and fans common to North and South Gas Cleaners (Venturi Scrubbers)**
  - **No. 1 BOP Evelyn BOP Vessel hoods, dampers, ductwork, and fans common to North and South Gas Cleaners (Venturi Scrubbers)**
  - **No. 1 BOP Mary BOP Vessel hoods, dampers, ductwork, and fans common to North and South Gas Cleaners (Venturi Scrubbers)**

- ☐ **Control Equipment:**
  - **BOP Vessels North Gas Cleaner (Venturi Scrubber)**
  - **BOP Vessels South Gas Cleaner (Venturi Scrubber)**
  - **Reladle and Hot Metal Desulfurization Baghouse (bag leak detection system only)**
  - **CAS-OB Baghouse (bag leak detection system only)**

Volume 1 of 1
Revision No. 2
Date: 8/05/08

Table of Contents

1.0 Introduction

1.1 Background

National Emissions Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing were promulgated under 40 CFR 63 Subpart FFFFF on May 20, 2003. The standards specify the following as affected facilities under 40 CFR 63 Subpart FFFFF:

- sinter plants
- blast furnaces
- basic oxygen process furnaces (BOPF)

The standards address emissions from each of the following emission sources:

- Sinter plant windbox exhaust
- Sinter plant discharge end
- Blast furnace casthouse
- Basic oxygen process furnace (BOPF)
- BOPF shop hot metal transfer
- BOPF shop hot metal desulfurization
- BOPF shop hot metal slag skimming
- BOPF shop ladle metallurgy

1.2 Purpose

These standards require that certain plans be developed and implemented by May 22, 2006. The purpose of this document is to comply with the requirements of 40 CFR 63 Subparts A and FFFFF to develop and implement the following plans:

- Operation and maintenance plan
- Site-specific monitoring plan
- Startup, shutdown and malfunction plan

1.3 Applicability

1.3(a) Operation and Maintenance Plan

40 CFR 63.7800 requires that a written Operation and Maintenance plan be developed and implemented for the following particulate emission capture systems* and particulate emission control devices specified in 40 CFR 63.7790(b):

- Sinter plant discharge end particulate emission capture systems

- Blast furnace casthouse particulate emission capture systems
- BOPF secondary particulate emission capture systems
- BOPF venturi scrubber primary particulate emission control systems
- BOPF electrostatic precipitator primary particulate emission control systems

* For purposes of this plan, "emission capture system" includes emission capture hoods, ductwork, dampers and fans important to the efficient collection and transport of particulate emissions to a particulate emission control device. The particulate emission control device is not part of the particulate emission capture system.

The Operations and Maintenance Plan for the No. 1 BOP control equipment is included in this document.

1.3(b) Site-Specific Monitoring Plan

40 CFR 63.7831(a) requires that a Site-Specific Monitoring Plan be developed and implemented for each Continuous Parametric Monitoring System (CPMS) required in 40 CFR 63.7830. Therefore, each CPMS associated with each particulate emission capture system and each particulate emission control device required to have an Operation and Maintenance Plan, listed in 1.3(a) above, is also required to have a Site-Specific Monitoring Plan.

The Site-Specific Monitoring Plan is not included in this document. It is included in a separate document.

1.3(c) Startup, Shutdown and Malfunction Plans

40 CFR 63.7810(c) requires that a written Startup, Shutdown and Malfunction Plan be developed and implemented according to the requirements of 40 CFR 63.6(e)(3), which states in part:

> *"...The owner or operator of an affected source must develop and implement a written startup, shutdown and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard."*

Therefore, the Startup, Shutdown and Malfunction Plan must address all process, particulate emission control equipment and monitoring equipment used to comply with the standard.

The Startup, Shutdown and Malfunction Plan is not included in this document. It is included in a separate document.

2.0 Operation and Maintenance Plans

2.1 Scope

The following particulate emission capture systems and particulate emission control devices are covered by this plan:

- Particulate emission capture systems
  - No. 1 BOP Daisy BOP Vessel hoods, dampers, ductwork, and fans to common North and South Gas Cleaners (Venturi Scrubbers)
  - No. 1 BOP Evelyn BOP Vessel hoods, dampers, ductwork, and fans to common North and South Gas Cleaners (Venturi Scrubbers)
  - No. 1 BOP Mary BOP Vessel hoods, dampers, ductwork, and fans to common North and South Gas Cleaners (Venturi Scrubbers)

- Particulate emission control devices
  - BOP Vessels North Gas Cleaner (Venturi Scrubber)
  - BOP Vessels South Gas Cleaner (Venturi Scrubber)
  - Reladle and Hot Metal Desulfurization Baghouse (bag leak detection system only)
  - CAS-OB Baghouse (bag leak detection system only)

2.1.1 The purpose of this plan is to ensure that the above are operated and maintained in a manner consistent with good air pollution control practices. (63.7800(a))

2.1.2 Definitions

2.1.2.1 Control device consists of the scrubber components (venturi sections).

2.2 Plan Elements

2.2.1 Equipment inspection of capture systems for the North and South Gas Cleaners (63.7800(b)(1))

Equipment	Inspecting Frequency	Inspecting Department	Recording Method	Regulatory Citation
Ductwork (external)	Monthly	Maintenance	Title V System	63.7800(b)(1)
Hoods	Monthly	Maintenance	Title V System	63.7800(b)(1)
Pressure Sensors	Monthly	Maintenance	Title V System	63.7800(b)(1)

Dampers and Damper Switches	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Exterior Integrity	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Bearings and Couplings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Motors Bearings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Housing and Seals	Monthly	Maintenance	Title V System	63.7800(b)(1)

2.2.1.1 All deficiencies found during inspections listed in the above table such as holes, corrosion, deformation, broken drive shafts or other conditions affecting performance will be recorded on existing inspection forms. Corrective action will be completed before the next scheduled inspection.

2.2.2 Preventative Maintenance for the North and South Gas Cleaners (63.7800(b)(2))

2.2.2.1 Refer to current scrubber inspection frequency in the Continuous Compliance Plan (CCP) for the scrubbers.

2.2.2.2 The preventative maintenance schedule is consistent with the manufacturer's instructions for routine or long term maintenance.

2.2.3 Corrective action (CA) procedures for venturi scrubbers (Gas Cleaners) (63.7800(b)(5) & 63.7833(g))

Hourly Average Pressure Drop or Water Flow Rate Alarm Response	**Response Action**	**Corrective Action (CA) Responsibilities**	**Recording Method**	**Regulatory Citation**
Within 1 hour	Initiate CA to determine the cause of the alarm.	Maintenance	Title V System	64.7800(b)(5) & 63.7833(g)
Within 24 hours	Measure and record the hourly average to determine if CA successful.	Maintenance	Title V System	64.7800(b)(5) & 63.7833(g)
Within 48 hours (if first CA not successful)	Measure and record the hourly average to determine if CA successful.	Maintenance	Title V System	64.7800(b)(5) & 63.7833(g)

Operating Limits

Source	Operating Parameter	Why Chosen	Recording Method	Operating Limits
North Gas Cleaner	Water Flow	Current equipment	Continuous	>=3095
	Pressure Drop	Current equipment	Continuous	>=65
South Gas Cleaner	Water Flow	Current equipment	Continuous	>=2766
	Pressure Drop	Current equipment	Continuous	>=65

* Operating Limits were set during the most recent Performance Test.

2.2.4 Corrective action (CA) procedures for bag leak detectors (63.7800(b)(4))

2.2.4.1 Bag leak detectors are installed on both the Reladle and Hot Metal Desulfurization Baghouse and the CAS-OB Baghouse.

Bag Leak Detector Alarm Response	Response Action	Corrective Action (CA) Responsibilities	Recording Method	Regulatory Citation
Within 1 hour	Initiate CA to determine the cause of the alarm.	Maintenance	Title V System	63.7800(b)(4)
Within 24 hours	Initiate CA to correct the cause of the problem.	Maintenance	Title V System	63.7800(b)(4)
As soon as practicable	Complete CA.	Maintenance	Title V System	63.7800(b)(4)

2.2.5 Inspections specific to all applicable baghouses (63.7830(b)(4)(i)-(viii))

Baghouse Equipment	Inspection Frequency	Inspection Task	Recording Method	Regulatory Citation
Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.	Daily	Maintenance	Title V System	63.7830(b)(1)
Confirm that dust is being removed from	Weekly	Maintenance	Title V System	63.7830(b)(2)

hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.				
Check the compressed air supply for pulse-jet baghouses.	Daily	Maintenance	Title V System	63.7830(b)(3)
Monitor cleaning cycles to ensure proper operation using an appropriate methodology.	Daily	Maintenance	Title V System	63.7830(b)(4)
Check bag cleaning mechanisms for proper functioning using an appropriate methodology.	Monthly	Maintenance	Title V System	63.7830(b)(5)
Confirm the physical integrity of the baghouse through visual inspections of the baghouse interior for air leaks.	Quarterly	Maintenance	Title V System	63.7830(b)(7)
Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors or equivalent means.	Quarterly	Maintenance	Title V System	63.7830(b)(8)

3.0 Plan Maintenance, Recordkeeping and Reporting

3.1 Initial plan requirements

- The Operation and Maintenance Plan must be developed and implemented by May 22, 2006.
- Failure to meet any condition in a plan is a deviation and must be reported as such in your periodic deviation report.

3.2 Plan revisions

- The O & M Plan may be revised at any time without permitting agency notification.

3.3 Recordkeeping

- You must keep all current plans, superceded plans and all information necessary to demonstrate that you have complied with each plan requirement on-site for a period of at least 5 years. The

first three years the information must be kept on-site and the last two years the information can be stored off-site.

United States Steel Corporation
Gary Works

---

40 CFR 63 Subpart FFFFF
National Emission Standards for Hazardous Air Pollutants
For Integrated Iron and Steel Manufacturing Facilities

▫ Operation and Maintenance Plan

Applicable to the following:

- **Processes:**
  - **No. 2 QBOP "T" QBOP Vessel**
  - **No. 2 QBOP "W" QBOP Vessel**
  - **No. 2 QBOP "Y" QBOP Vessel**

- **Capture Systems:**
  - **No. 2 QBOP Secondary Emissions Control (SEC) Baghouse hoods, dampers, ductwork, and fans**

- **Control Equipment:**
  - **QBOP Vessels East Gas Cleaner (Venturi Scrubber)**
  - **QBOP Vessels West Gas Cleaner (Venturi Scrubber)**
  - **Secondary Emissions Control (SEC) Baghouse (bag leak detection system only)**
  - **Mixer Desulfurization Baghouse (bag leak detection system only)**
  - **No. 1 LMF (Ladle Metallurgical Furnace) Baghouse (bag leak detection system only)**
  - **No. 2 LMF Baghouse (bag leak detection system only)**
  - **RH Degasser Baghouse (bag leak detection system only)**

Volume 1 of 1
Revision No. 2
Date: 8/05/08

Table of Contents

1.0 Introduction

1.1 Background

National Emissions Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing were promulgated under 40 CFR 63 Subpart FFFFF on May 20, 2003. The standards specify the following as affected facilities under 40 CFR 63 Subpart FFFFF:

- sinter plants
- blast furnaces
- basic oxygen process furnaces (BOPF)

The standards address emissions from each of the following emission sources:

- Sinter plant windbox exhaust
- Sinter plant discharge end
- Blast furnace casthouse
- Basic oxygen process furnace (BOPF)
- BOPF shop hot metal transfer
- BOPF shop hot metal desulfurization
- BOPF shop hot metal slag skimming
- BOPF shop ladle metallurgy

1.2 Purpose

These standards require that certain plans be developed and implemented by May 22, 2006. The purpose of this document is to comply with the requirements of 40 CFR 63 Subparts A and FFFFF to develop and implement the following plans:

- Operation and maintenance plan
- Site-specific monitoring plan
- Startup, shutdown and malfunction plan

1.3 Applicability

1.3(a) Operation and Maintenance Plan

40 CFR 63.7800 requires that a written Operation and Maintenance plan be developed and implemented for the following particulate emission capture systems* and particulate emission control devices specified in 40 CFR 63.7790(b):

- Sinter plant discharge end particulate emission capture systems

- Blast furnace casthouse particulate emission capture systems
- BOPF secondary particulate emission capture systems
- BOPF venturi scrubber primary particulate emission control systems
- BOPF electrostatic precipitator primary particulate emission control systems

* For purposes of this plan, "emission capture system" includes emission capture hoods, ductwork, dampers and fans important to the efficient collection and transport of particulate emissions to a particulate emission control device. The particulate emission control device is not part of the particulate emission capture system.

The Operations and Maintenance Plan for the No. 2 QBOP capture systems and control equipment is included in this document.

1.3(b) Site-Specific Monitoring Plan

40 CFR 63.7831(a) requires that a Site-Specific Monitoring Plan be developed and implemented for each Continuous Parametric Monitoring System (CPMS) required in 40 CFR 63.7830. Therefore, each CPMS associated with each particulate emission capture system and each particulate emission control device required to have an Operation and Maintenance Plan, listed in 1.3(a) above, is also required to have a Site-Specific Monitoring Plan.

The Site-Specific Monitoring Plan is not included in this document. It is included in a separate document.

1.3(c) Startup, Shutdown and Malfunction Plans

40 CFR 63.7810(c) requires that a written Startup, Shutdown and Malfunction Plan be developed and implemented according to the requirements of 40 CFR 63.6(e)(3), which states in part:

> *"...The owner or operator of an affected source must develop and implement a written startup, shutdown and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard."*

Therefore, the Startup, Shutdown and Malfunction Plan must address all process, particulate emission control equipment and monitoring equipment used to comply with the standard.

The Startup, Shutdown and Malfunction Plan is not included in this document. It is included in a separate document.

2.0 Operation and Maintenance Plans

2.1 Scope

The following particulate emission capture systems and particulate emission control devices are covered by this plan:

- Particulate emission capture systems
  - No. 2 QBOP "T" QBOP Vessel hoods, dampers, ductwork, and fans common to East and West Gas Cleaners (Venturi Scrubbers)
  - No. 2 QBOP "W" QBOP Vessel hoods, dampers, ductwork, and fans common to East and West Gas Cleaners (Venturi Scrubbers)
  - No. 2 QBOP "Y" QBOP Vessel hoods, dampers, ductwork, and fans common to East and West Gas Cleaners (Venturi Scrubbers)
  - SEC Baghouse hoods, dampers, ductwork, and fans

- Particulate emission control devices
  - QBOP Vessels East Gas Cleaner (Venturi Scrubber)
  - QBOP Vessels West Gas Cleaner (Venturi Scrubber)
  - SEC Baghouse (bag leak detection system only)
  - Mixer Desulfurization Baghouse (bag leak detection system only)
  - No. 1 LMF Baghouse (bag leak detection system only)
  - No. 2 LMF Baghouse (bag leak detection system only)
  - RH Degasser Baghouse (bag leak detection system only)

2.1.1 The purpose of this plan is to ensure that the above are operated and maintained in a manner consistent with good air pollution control practices. (63.7800(a))

2.1.2 Definitions

2.1.2.1 Capture systems includes the hood, ductwork, and fans.

2.1.2.2 Control devices consist of the scrubber components (venturi sections).

2.2 Plan Elements

2.2.1 Equipment inspection of capture systems for the East and West Gas Cleaners (63.7800(b)(1))

Equipment	Inspecting Frequency	Inspecting Department	Recording Method	Regulatory Citation
Ductwork	Monthly	Maintenance	Title V	63.7800(b)(1)

(external)			System	
Hoods	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Exterior Integrity	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Bearings and Couplings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Motors Bearings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Housing and Seals	Monthly	Maintenance	Title V System	63.7800(b)(1)

2.2.1.1 All deficiencies found during inspections listed in the above table such as holes, corrosion, deformation, broken drive shafts or other conditions affecting performance will be recorded on existing inspection forms. Corrective action will be completed before the next scheduled inspection.

2.2.2 Equipment inspection of capture systems for the SEC Baghouse (63.7800(b)(1))

Equipment	**Inspecting Frequency**	**Inspecting Department**	**Recording Method**	**Regulatory Citation**
Ductwork (external)	Monthly	Maintenance	Title V System	63.7800(b)(1)
Hoods	Monthly	Maintenance	Title V System	63.7800(b)(1)
Pressure Sensors	Monthly	Maintenance	Title V System	63.7800(b)(1)
Dampers and Damper Switches	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Exterior Integrity	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fans Bearings and Couplings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Motors Bearings	Monthly	Maintenance	Title V System	63.7800(b)(1)
Fan Housing and Seals	Monthly	Maintenance	Title V System	63.7800(b)(1)
Temperature Check	Monthly	Maintenance	Title V System	63.7800(b)(1)

2.2.2.1 All deficiencies found during inspections listed in the above table such as holes, corrosion, deformation, broken drive shafts or other conditions affecting performance

will be recorded on existing inspection forms. Corrective action will be completed before the next scheduled inspection.

2.2.3 Preventative Maintenance for the East and West Gas Cleaners (63.7800(b)(2))

2.2.3.1 Refer to current scrubber inspection frequency in the Continuous Compliance Plan (CCP) for the scrubbers.

2.2.3.2 The preventative maintenance schedule is consistent with the manufacturer's instructions for routine or long term maintenance.

2.2.4 Operating Limits

Operating Limits SEC Baghouse

Operating Parameter	Why Chosen	Recording Method	Averaging Frequency	Regulatory Citation	Operating Limits
Fan amps	Current equipment	Continuous	Hourly average	63.7800(b)(3)	>= 133 amps
Dampers/actuators positions	Current equipment	Continuous	N/A	63.7800(b)(3)	See table below

Damper Positions

Operating Scenario	T-Furnace Secondary damper North	T-Furnace Secondary damper South	W-Furnace Secondary damper North	W-Furnace Secondary damper South	Y-Furnace Secondary damper North	Y-Furnace Secondary damper South	Secondary Baghouse inlet damper Fan 1 F1INTDMP.P	Secondary Baghouse inlet damper Fan 2 F2INLTDM.P
T at initiation of scrap preheat (after scrap charge), prior to HM charge	TNOPEN.P	TSOPEN.P	WNCLOSE.P	WSCLOSE.P	YNCLOSE.P	YSCLOSE.P	open	open
T HM charge	TNOPEN.P	TSOPEN.P	WNCLOSE.P	WSCLOSE.P	YNCLOSE.P	YSCLOSE.P	open	open
T after HM charge (when furnace reaches upright position)	**Damper settings after HM charge are dependent on other operations – see notes below.**						100% open	100% open
W at initiation of scrap preheat (after scrap charge), prior to HM charge	TNCLOSE.P	TSCLOSE.P	WNOPEN.P	WSOPEN.P	YNCLOSE.P	YSCLOSE.P	open	open
W HM charge	TNCLOSE.P	TSCLOSE.P	WNOPEN.P	WSOPEN.P	YNCLOSE.P	YSCLOSE.P	open	open
W after HM charge (when furnace reaches upright position)	**Damper settings after HM charge are dependent on other operations – see notes below.**						100% open	100% open

Operating Scenario	T-Furnace Secondary damper North	T-Furnace Secondary damper South	W-Furnace Secondary damper North	W-Furnace Secondary damper South	Y-Furnace Secondary damper North	Y-Furnace Secondary damper South	Secondary Baghouse inlet damper Fan 1 F1INTDMP.P	Secondary Baghouse inlet damper Fan 2 F2INLTDM.P
Y at initiation of scrap preheat (after scrap charge), prior to HM charge	TNCLOSE.P	TSCLOSE.P	WNCLOSE.P	WSCLOSE.P	YNOPEN.P	YSOPEN.P	open	open
Y HM charge	TNCLOSE.P	TSCLOSE.P	WNCLOSE.P	WSCLOSE.P	YNOPEN.P	YSOPEN.P	open	open
Y after HM charge (when furnace reaches upright position)	**Damper settings after HM charge are dependent on other operations – see notes below.**						100% open	100% open

Note:

Logic is set up to completely open the secondary dampers on the furnace that will receive hot metal charge, with all other furnaces' secondary dampers completely closed. The secondary dampers remain open on the furnace that received the hot metal charge until one of thwo things occur:

1. The hot metal charge process is initiated at another furnace. If this occurs, the furnace that will receive the hot metal charge has its secondary dampers opened 100%, and all other secondary furnace dampers are completely closed. This process repeats.

2. If there is a reline going on at one of the furnaces, the logic allows the shop to leave the secondary dampers completely open at the furnace being relined, with other dampers completely shut. Damper positions change only when the hot metal charge process is initiated at another furnace. When this occurs, the furnace that will receive the hot metal charge has its secondary dampers opened 100%, and all other secondary furnace dampers are completely closed. Immediately after the hot metal charge, the dampers open at the furnace being relined and close at all other furnaces. This process repeats.

Only one baghouse fan runs at any given time. For example, if fan 1 is in operation, its inlet damper is either open or at an intermediate Position, with the fan 2 inlet damper completely closed.

If the furnace is rotated down to 90 degrees after initiation of scrap preheat, but before the hot metal charge, the fan inlet damper will return to a fully open position.

Operating Limits for the East and West Gas Cleaners

Measuring System	Recording Method	Averaging Frequency	Regulatory Citation	Operating Limits
East Gas Cleaner Differential Pressure	Continuous	Hourly average	63.7831(a)	>= 56
East Gas Cleaner Water Flow Rate	Continuous	Hourly average	63.7831(a)	>= 1999
West Gas Cleaner Differential Pressure	Continuous	Hourly average	63.7831(a)	>= 53
West Gas Cleaner Water Flow Rate	Continuous	Hourly average	63.7831(a)	>= 2011

*Operating Limits were set during the most recent Performance Test.

2.2.4.1 Fugitive particulate emissions generated from scrap charging, hot metal charging, tapping, and deskulling are captured and conveyed to the SEC Baghouse.

2.2.4.2 Description of capture system design will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.4.3 Description of the capture system operating during production will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.4.4 The rationale for why the operating parameter was chosen is because it is currently being measured. (63.7800(b)(3)(iii))

2.2.4.5 Description of each selected operating limit parameter will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.4.6 Description of method used to monitor parameter will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.4.7 Data used to set the value or settings for the parameter for each process configuration will be maintained in the Title V System. (63.7800(b)(3)(iii))

2.2.5 Corrective action (CA) procedures for venturi scrubbers (East and West Gas Cleaners) (63.7800(b)(5) & 63.7833(g))

Hourly Average Pressure Drop or Water Flow Rate Alarm Response	**Response Action**	**Corrective Action (CA) Responsibilities**	**Recording Method**	**Regulatory Citation**
Within 1 hour	Initiate CA to determine the cause of the alarm.	Maintenance	Title V System	63.7800(b)(5) & 63.7833(g)
Within 24 hours	Measure and record the hourly average to determine if CA successful.	Maintenance	Title V System	63.7800(b)(5) & 63.7833(g)
Within 48 hours (if first CA not successful)	Measure and record the hourly average to determine if CA successful.	Maintenance	Title V System	63.7800(b)(5) & 63.7833(g)

2.2.6 Corrective action (CA) procedures for bag leak detectors (63.7800(b)(4))

2.2.6.1 Bag leak detectors are installed on the SEC Baghouse, Mixer Desulfurization Baghouse, No. 1 LMF Baghouse, No. 2 LMF Baghouse, and RH Degasser Baghouse. The installation of bag leak detectors is not required on the No. 3 LMF Baghouse, because it is a positive pressure baghouse without stacks.

Bag Leak Detector Alarm Response	Response Action	Corrective Action (CA) Responsibilities	Recording Method	Regulatory Citation
Within 1 hour	Initiate CA to determine the cause of the alarm.	Maintenance	Title V System	63.7800(b)(4)
Within 24 hours	Initiate CA to correct the cause of the problem.	Maintenance	Title V System	63.7800(b)(4)
As soon as practicable	Complete CA.	Maintenance	Title V System	63.7800(b)(4)

2.2.7 Inspections specific to all applicable baghouses (63.7830(b)(4)(i)-(viii))

Baghouse Equipment	Inspection Frequency	Inspection Task	Recording Method	Regulatory Citation
Monitor the pressure drop across each baghouse cell each day to ensure pressure drop is within the normal operating range identified in the manual.	Daily	Maintenance	Title V System	63.7830(b)(1)
Confirm that dust is being removed from hoppers through weekly visual inspections or other means of ensuring the proper functioning of removal mechanisms.	Weekly	Maintenance	Title V System	63.7830(b)(2)
Check the compressed air supply for pulse-jet baghouses.	Daily	Maintenance	Title V System	63.7830(b)(3)
Monitor cleaning cycles to ensure proper operation using an	Daily	Maintenance	Title V System	63.7830(b)(4)

appropriate methodology.				
Check bag cleaning mechanisms for proper functioning using an appropriate methodology.	Monthly	Maintenance	Title V System	63.7830(b)(5)
Confirm the physical integrity of the baghouse through visual inspections of the baghouse interior for air leaks.	Quarterly	Maintenance	Title V System	63.7830(b)(7)
Inspect fans for wear, material buildup, and corrosion through quarterly visual inspections, vibration detectors or equivalent means.	Quarterly	Maintenance	Title V System	63.7830(b)(8)

3.0 Plan Maintenance, Recordkeeping and Reporting

3.1 Initial plan requirements

- The Operation and Maintenance Plan must be developed and implemented by May 22, 2006.
- Failure to meet any condition in a plan is a deviation and must be reported as such in your periodic deviation report.

3.2 Plan revisions

- The O & M Plan may be revised at any time without permitting agency notification.

3.3 Recordkeeping

- You must keep all current plans, superceded plans and all information necessary to demonstrate that you have complied with each plan requirement on-site for a period of at least 5 years. The first three years the information must be kept on-site and the last two years the information can be stored off-site.

ATTACHMENT D

SUMMARY OF TEST RESULTS

COMPANY	US Steel
LOCATION	Gary, IN
SOURCE	84 inch Pickling Line Scrubber Exhaust

	30 GPM	45 GPM	60 GPM	75 GPM
RUN NO				
TEST DATE	10/27/2005	10/27/2005	10/27/2005	10/27/2005
TEST TIME	1030-1100	1101-1131	1136-1206	1233-1303
Stack Gas Parameters				
Temperature, °F	115.0	116.0	118.0	119.0
Velocity, av. ft/sec	26.3	26.1	26.3	26.4
Volumetric flow, acfm	44,555	44,358	44,671	44,710
Volumetric flow, scfm	40,402	40,154	40,297	40,262
Volumetric flow, dscfh	2,157,467	2,144,218	2,151,861	2,150,002
Moisture, av. % vol	11.0	11.0	11.0	11.0
Carbon Dioxide, av. % vol	0.0	0.0	0.0	0.0
Oxygen, av. % vol	20.9	20.9	20.9	20.9
HCl Emissions				
Concentration				
ppm v db	**54.0**	**61.0**	**67.0**	**72.0**
x 10^{-6} lb/dscf	5.112	5.774	6.342	6.816
nission Rate				
lb/hr	11.03	12.38	13.65	14.65
Removal Efficiency				
%	98.55	98.37	98.20	98.07
Process Data				
Total Packing DP, in water	5.5	5.7	5.9	6.0
Demister DP, in water	1.0	1.0	1.0	1.0
Scrubber Circulation Rate, gpm	30.0	45.0	60.0	77.0

Efficiency based on average scrubber inlet of 3,743 ppm and loading rate of 758 lb/hr

ATTACHMENT E

United States Steel Corporation
Law Department
600 Grant Street
Pittsburgh, PA 15219-2800
Tel: 412.433.2919
Fax: 412.433.2964
E-mail: dwhacker@uss.com

David W. Hacker
Attorney-Environmental

February 25, 2008

VIA E-MAIL AND FIRST CLASS MAIL

Mr. Janusz Johnson
Senior Environmental Manager
Indiana Department of Environmental Management
Office of Compliance & Enforcement
Air Section
100 North Senate Avenue
MC 60-02 IGCN 1315
Indianapolis, IN 46204-2251

Re: Notice of Violation - Case No. 2007-17200-A
United States Steel Corporation – Gary Works

Dear Mr. Johnson:

As we discussed during our telephone conversations, including the most recent conversation of February 6, 2008, U. S. Steel is providing you with information regarding its compliance with pushing and coke oven door standards. U. S. Steel appreciates the opportunity to discuss and to respond to the issues identified in the above referenced Notice of Violation (NOV). .

As noted in the NOV, the Indiana Department of Environmental Management (IDEM) alleges that based upon its investigation on July 11, 2007, U. S. Steel exceeded the opacity limitations at Coke Ovens 12, 16, and 18 on Coke Oven Battery No. 2, with opacity measurements of 34.16%, 25.00% and 36.67%, respectively, as reported by IDEM, during pushing operations at each of the respective ovens, in violation of 326 IAC 6.8-9-3(a)(3) and Condition D.2.4(c)(2) of Gary Works' Part 70 Permit. In the same notice, IDEM alleges that on the same day visible emissions were observed at 11.7% of Coke Battery No. 2 oven doors, in violation of 326 IAC 6.8-9-3(a)(1) and Condition D.2.4(a) of Gary Works' Part 70 permit which require that visible emissions be observed in no more than 10% of the coke oven doors.

As we discussed, for settlement purposes, U. S. Steel is not alleging that the IDEM observations are incorrect or do not qualify as credible evidence, although it retains the right to claim such a defense should the matter be litigated. I will address the alleged pushing violations first and then will follow with a discussion of U. S. Steel's coke oven door compliance.

Pushing Compliance

As you are aware, the Agreed Order addresses past non-compliance with pushing opacity limitations and required U. S. Steel to demonstrate compliance with the pushing standards. As we discussed, while the Agreed Order is silent as to whether or not IDEM observations were to be included in any compliance demonstration, historically, IDEM observations have been included in such compliance demonstrations, *specifically at the request of IDEM.* In fact, the IDEM observations taken on July 11, 2007, as identified in the above referenced NOV, were included in the calculations and reports provided to IDEM to demonstrate compliance as required by the Agreed Order. During the third quarter of 2007, taking into account the IDEM observations listed in the above referenced NOV as well as other IDEM and U. S. Steel pushing observations taken in the Third Quarter 2007, U. S. Steel achieved 99% compliance with pushing at Coke Oven Battery No. 2, consistent with the Agreed Order. .

As noted above, IDEM observations have been used to demonstrate compliance with the Agreed Order. It would seem inappropriate for IDEM observations to be included within the scope of the Agreed Order when demonstrating compliance, but to pursue enforcement authorities outside the scope of the Order should a violation be observed. Paragraph 3a of the Order requires U. S. Steel to demonstrate compliance and allows U. S. Steel to perform less frequent observations should the monitoring show that "at least 99% compliance has been maintained for four (4) consecutive quarters." The Agreed Order indicates that a 99% compliance demonstration per quarter per coke oven battery (COB) was acceptable to "demonstrate compliance" since any excursions occurring within the 99% compliance period did not trigger additional, i.e., six, readings. As noted in the Third Quarterly Report provided to IDEM, U. S. Steel fulfilled this obligation.

Finally, U. S. Steel is providing a summary of its pushing compliance data that reveal that U. S. Steel's pushing compliance continues to improve. (See attached trend charts.) U. S. Steel continues to read four coke pushes per battery per day as required by 40 CFR § 63 Subpart CCCCC and any deviations are reported to IDEM quarterly.

Paragraph 4.a.i of the Agreed Order requires U. S. Steel to implement work practices in the event an opacity limit is exceeded. As required by the Agreed Order, U. S. Steel performed such work practices as described in 40 CFR § 63.7291 (a)(1) through (7) to correct the problem. Furthermore, the following two pushes from the respective ovens were observed and indicated compliance with the opacity standard therefore demonstrating that the corrective actions on each of the ovens were successful. In light of Agreed Order's apparent anticipation of isolated pushing opacity excursions, the implementation of successful corrective actions and compliance with the Agreed Order, including the IDEM observations that are subject to the NOV, U. S. Steel respectfully disagrees with IDEM's election to pursue an enforcement action regarding the above-referenced pushing observations.

Coke Oven Door Compliance

As noted in the above referenced NOV, IDEM alleges that visible emissions were observed leaking from 11.7% of the No. 2 Battery oven doors. As noted above, for settlement purposes, U. S. Steel is not alleging that the IDEM observations are incorrect or do not qualify as credible evidence, although it retains the right to claim such a defense should the matter be litigated. As noted in Paragraph 4.b.ii of the Agreed Order, 100% compliance with the coke oven door emission was not anticipated nor expected by the terms of the Order; and in fact, U. S. Steel is required to implement work practices on a coke oven battery only in the event that more than one inspection during a calendar month exceeded the door emission limits for any single coke oven batter. During the month of July 2007, only one inspection revealed an excursion above the 10% standard and implementation of work practices was not required or necessary pursuant to the terms of the Agreed Order.

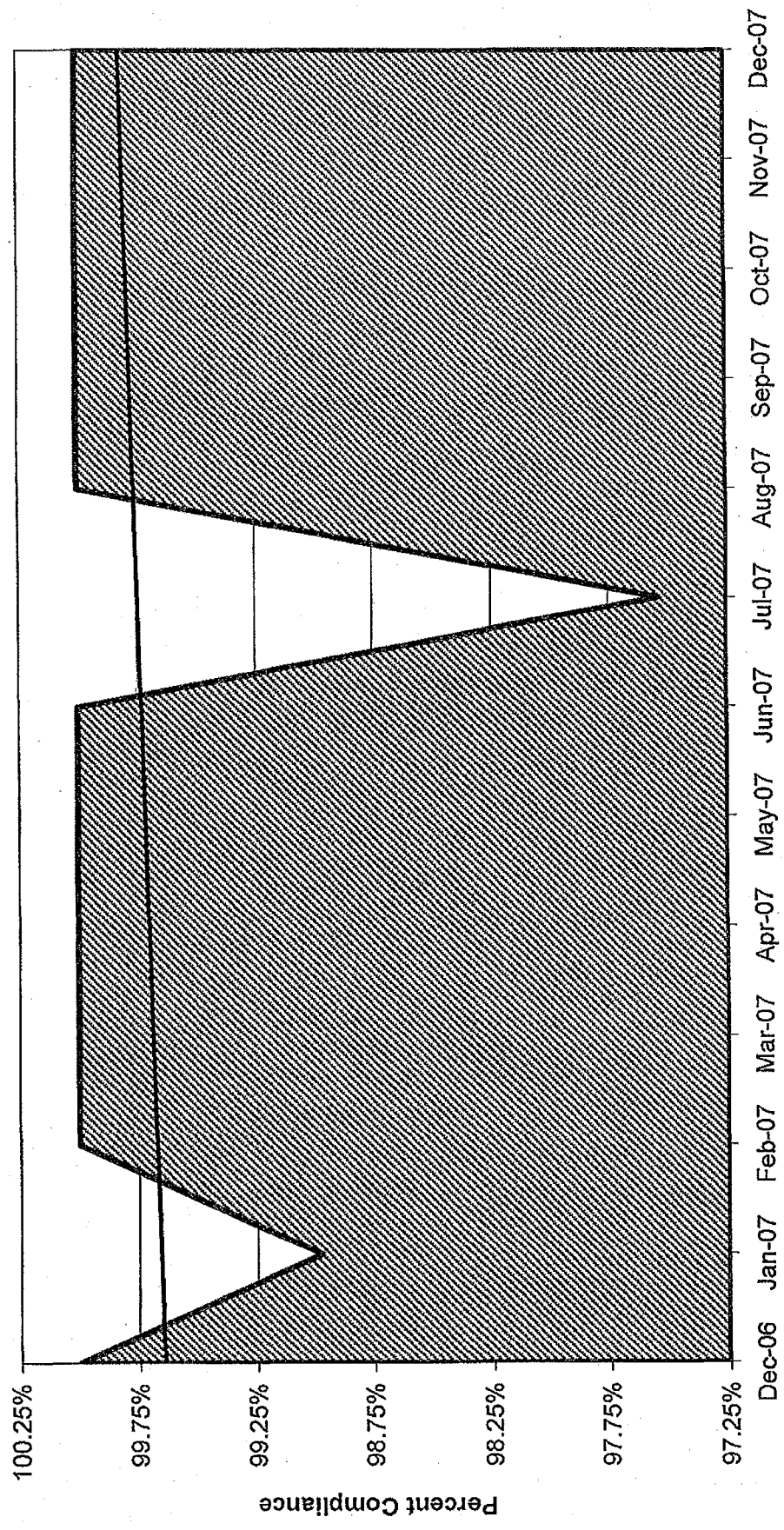
Furthermore, as illustrated in the attached charts, U. S. Steel has shown improvement with its compliance with the coke oven door standard. In light of U. S. Steel's consistent improvement with the coke oven door standard, compliance with the Agreed Order, and the fact that the excursion noted by IDEM did not even require implementation of any work practices, U. S. Steel respectfully disagrees with IDEM's election to pursue an enforcement action regarding the July 11, 2007 IDEM observation since the observation was an isolated observation and was not related to a systemic problem at the facility.

U. S. Steel appreciates this opportunity to respond to the above referenced NOV and would be pleased to meet with you to discuss this in further detail. I will contact you within the next week to discuss our response and to address any questions that you may have. In the interim, should you have any questions regarding this matter, please feel free to contact me at 412.433.2919.

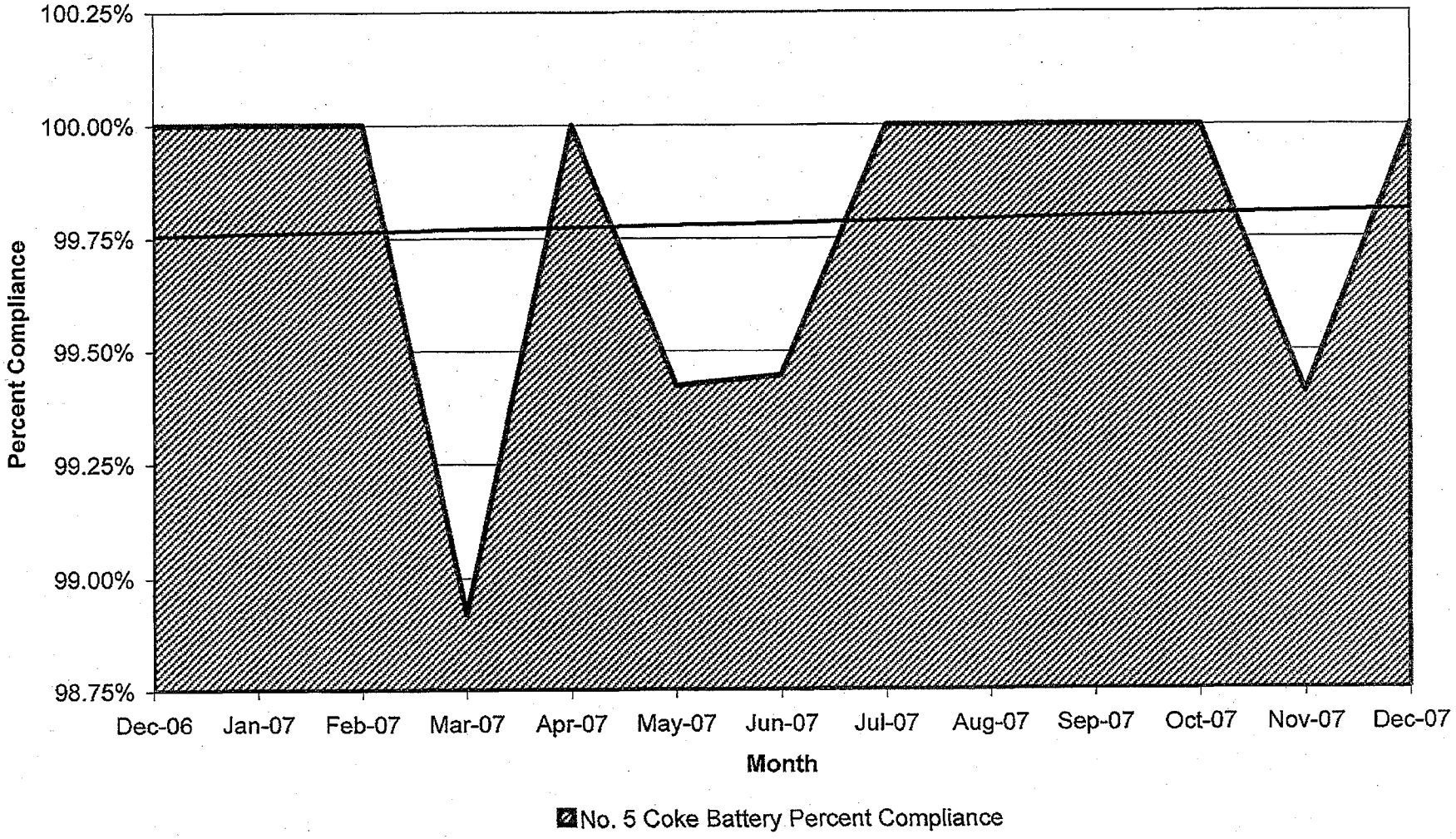
Very truly yours,

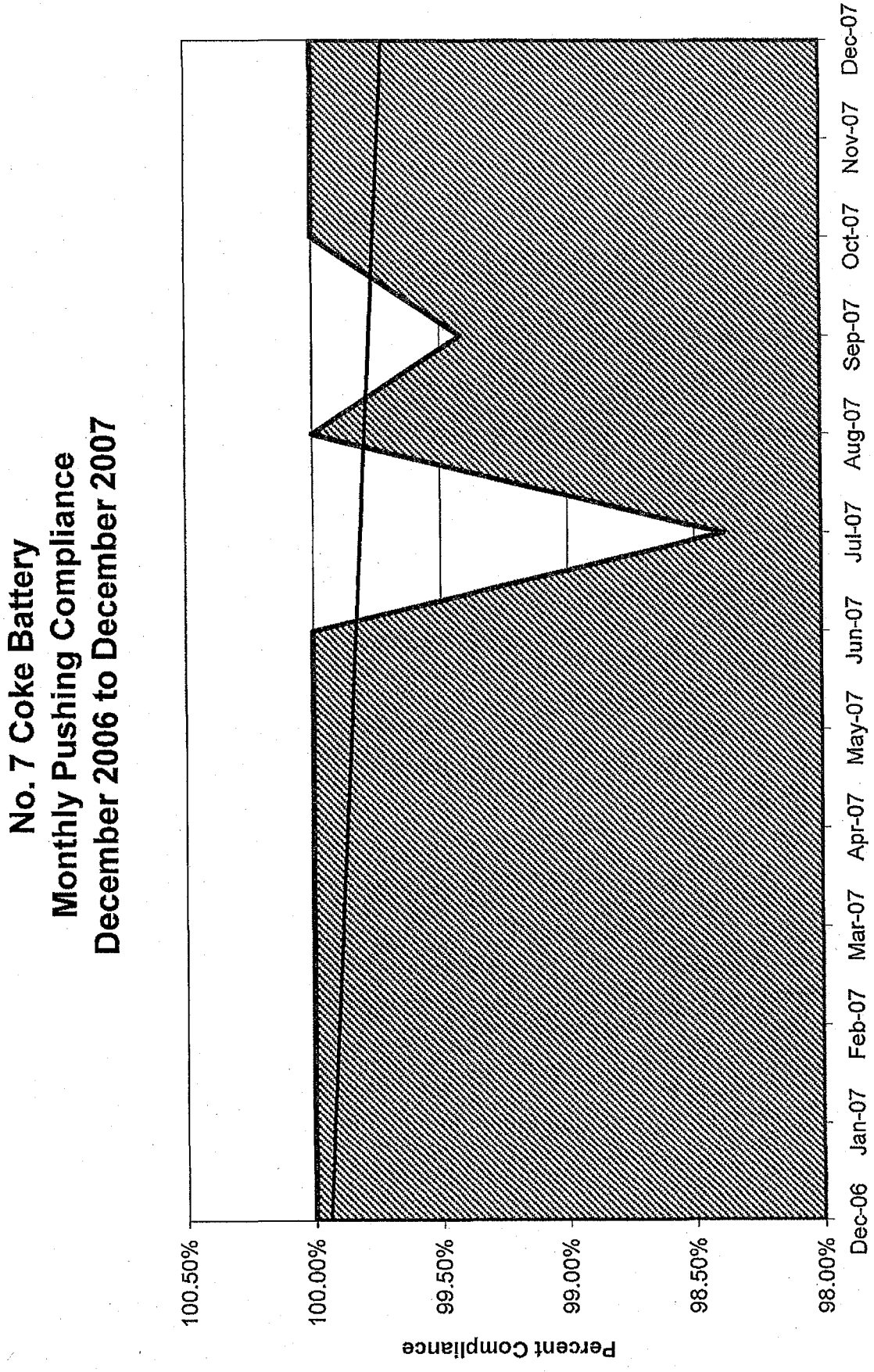
David W. Hacker

Attachments

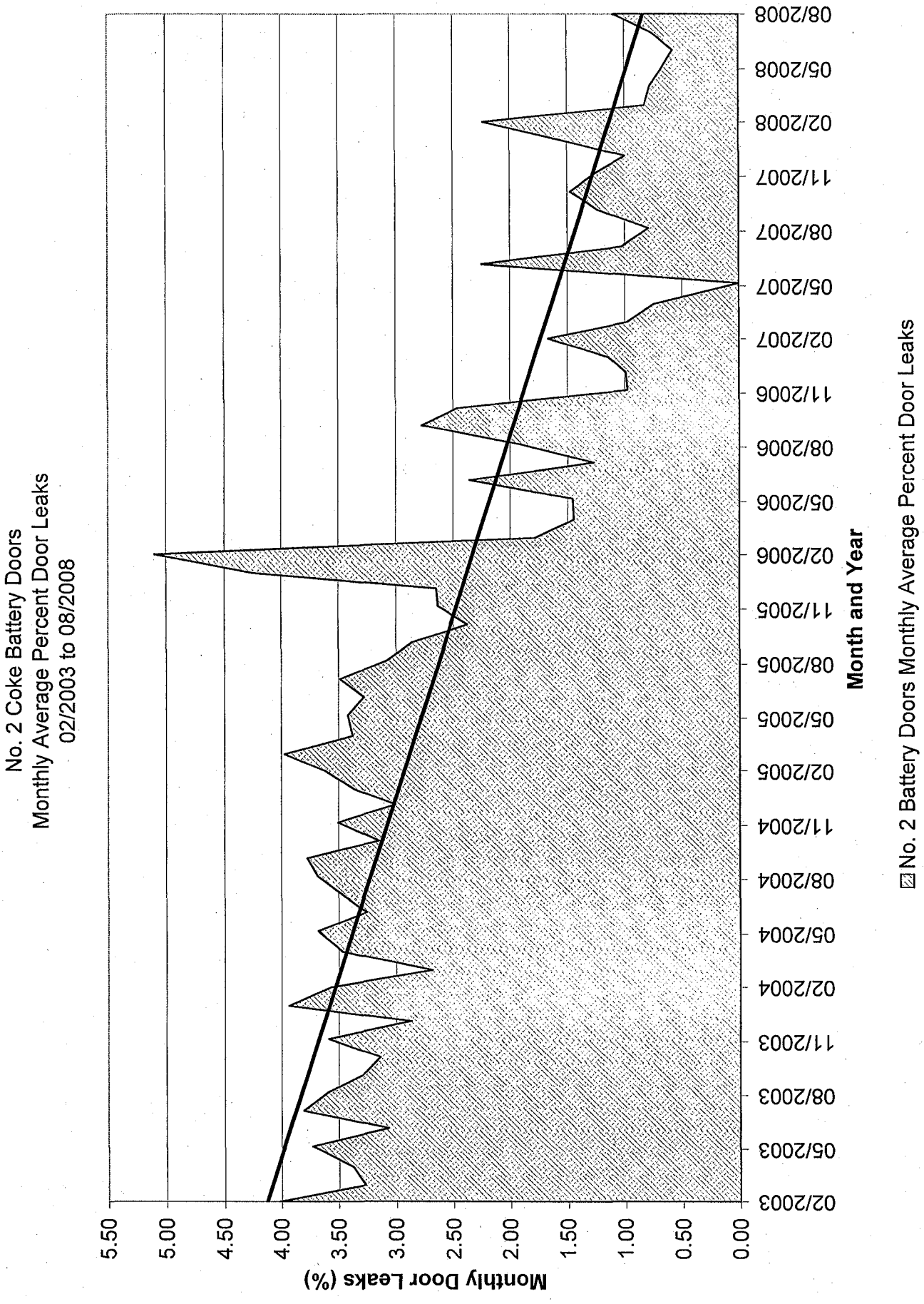

No. 2 Coke Battery
Monthly Pushing Compliance
December 2006 to December 2007
100.25%
99.75%
99.25%
98.75%
98.25%
97.75%
97.25%
Percent Compliance
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Month
No. 2 Coke Battery Percent Compliance

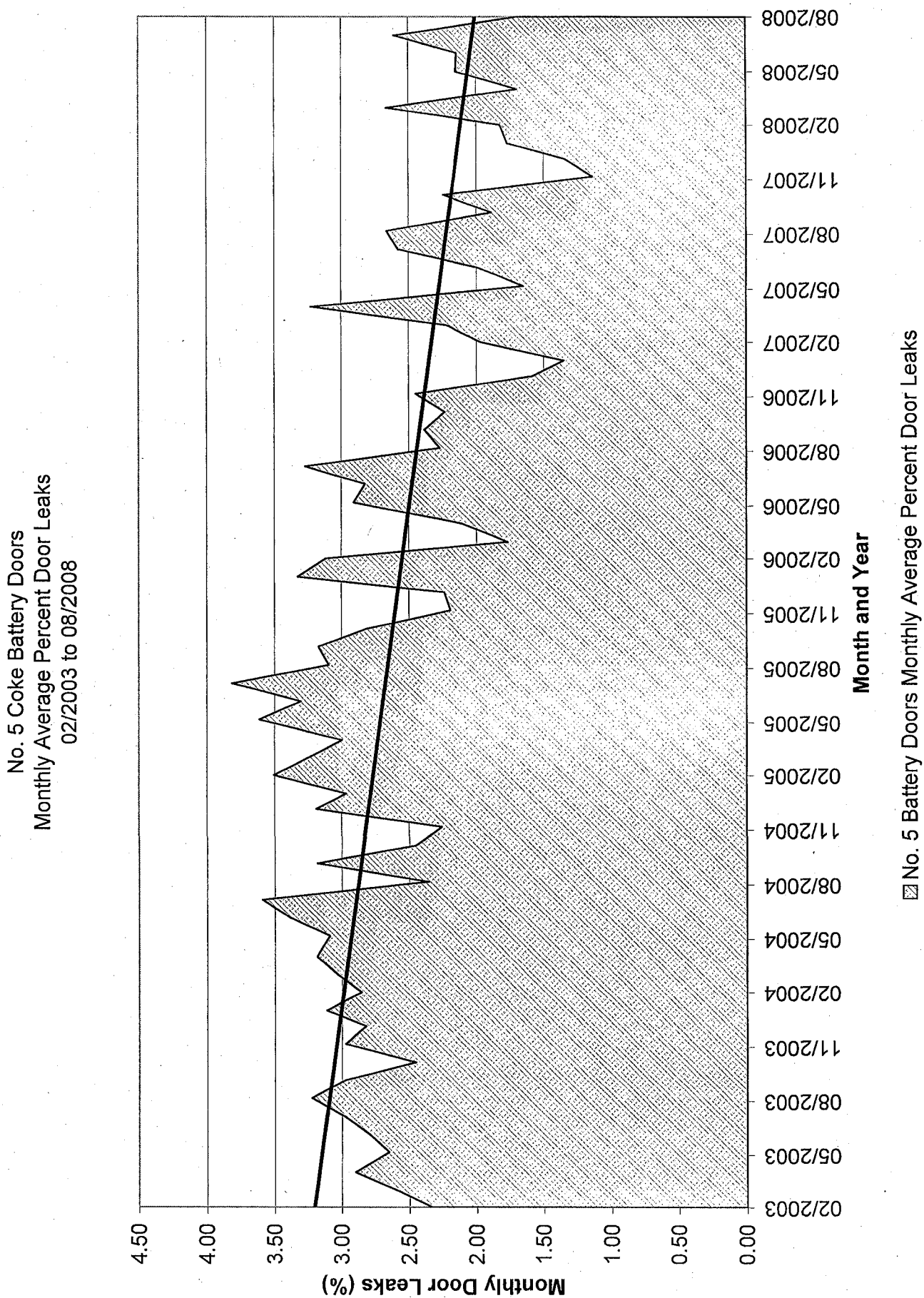
No. 5 Coke Battery
Monthly Pushing Compliance
December 2006 to December 2007

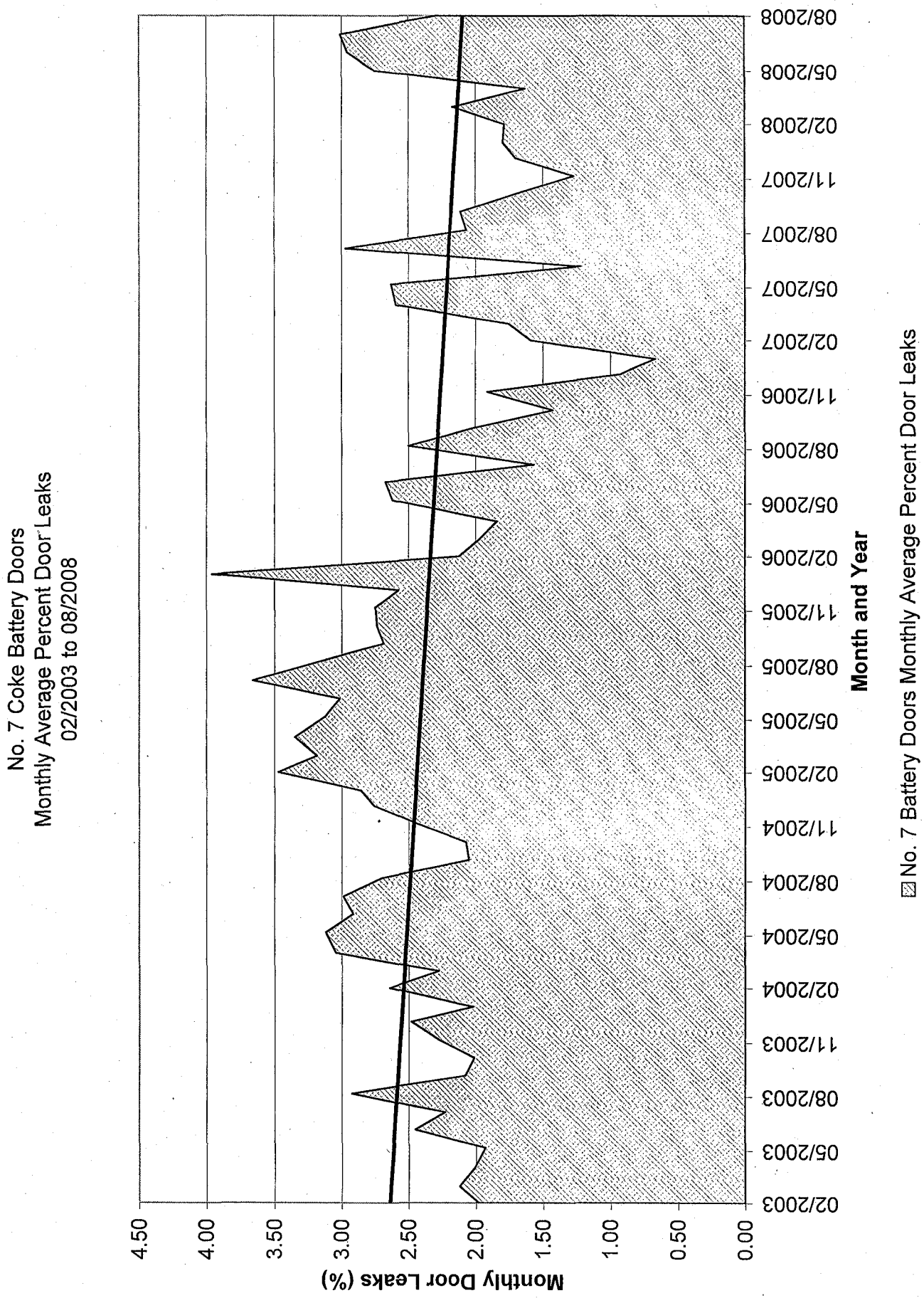



No. 7 Coke Battery
Monthly Pushing Compliance
December 2006 to December 2007
100.50%
100.00%
99.50%
99.00%
98.50%
98.00%
Percent Compliance
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Month
No. 7 Coke Battery Percent Compliance

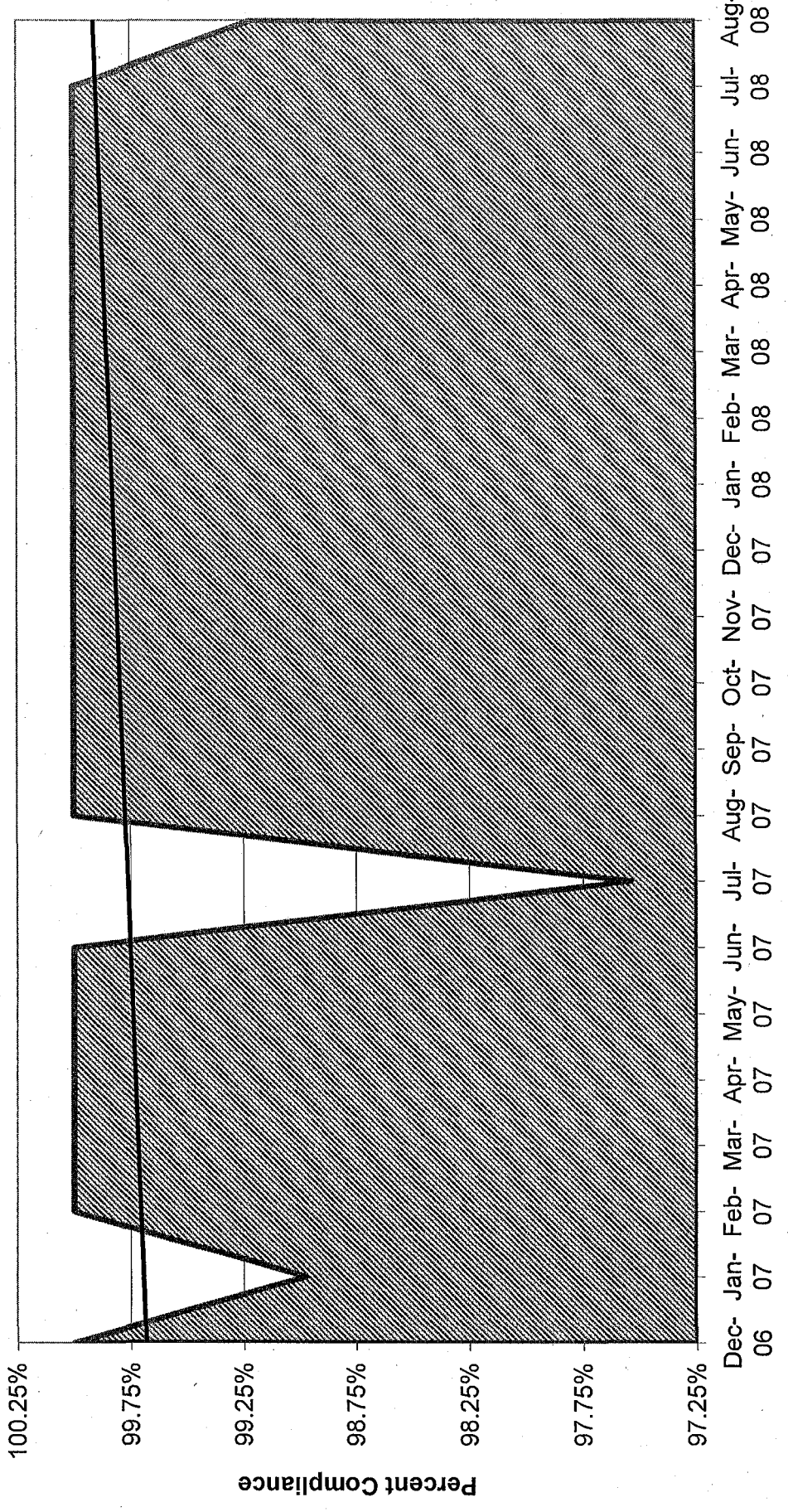
UPDATED DOOR LEAK TREND


No. 2 Coke Battery Doors
Monthly Average Percent Door Leaks
02/2003 to 08/2008
Monthly Door Leaks (%)
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
02/2003
05/2003
08/2003
11/2003
02/2004
05/2004
08/2004
11/2004
02/2005
05/2005
08/2005
11/2005
02/2006
05/2006
08/2006
11/2006
02/2007
05/2007
08/2007
11/2007
02/2008
05/2008
08/2008
Month and Year
No. 2 Battery Doors Monthly Average Percent Door Leaks

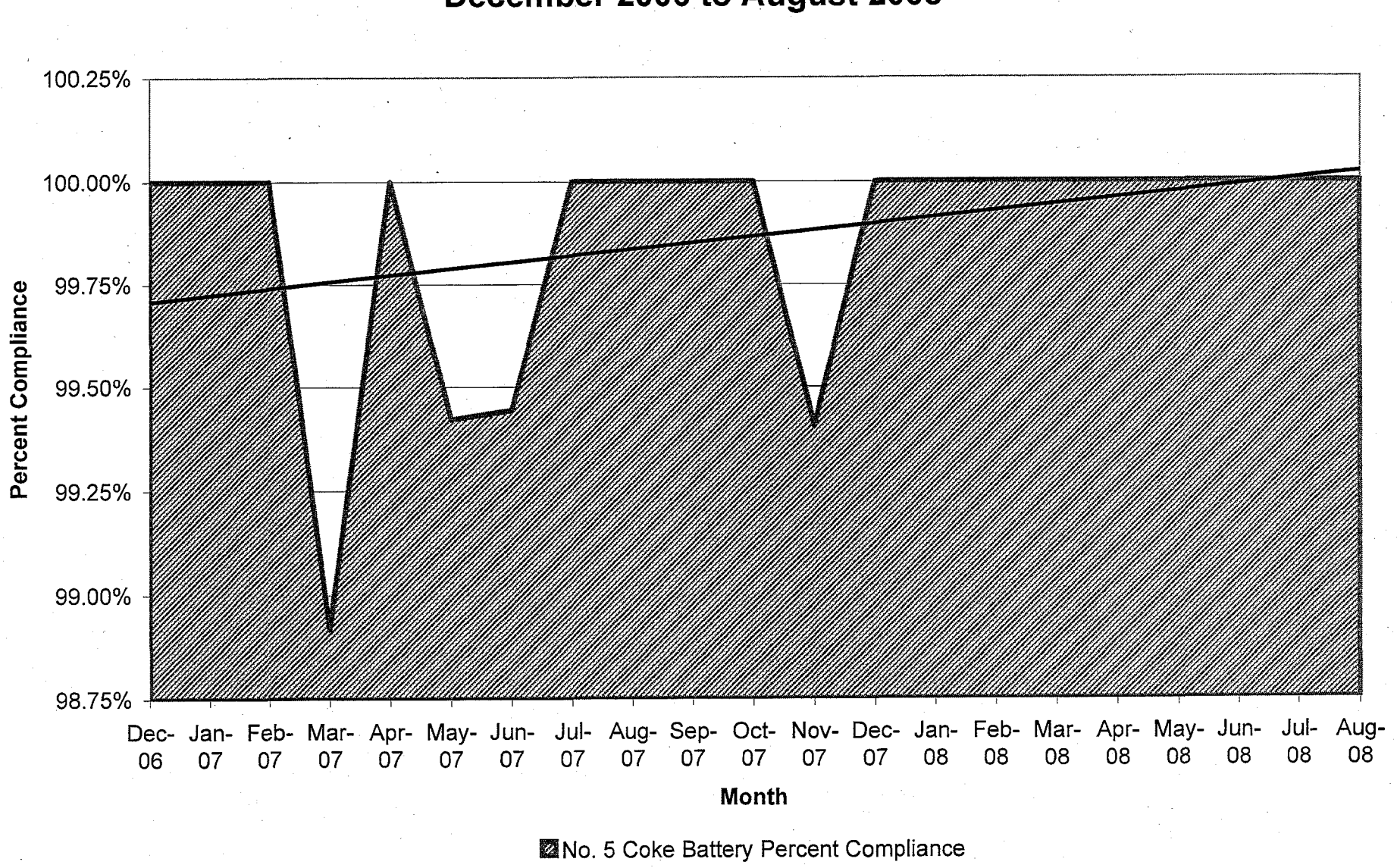

No. 5 Coke Battery Doors
Monthly Average Percent Door Leaks
02/2003 to 08/2008
Monthly Door Leaks (%)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
02/2003
05/2003
08/2003
11/2003
02/2004
05/2004
08/2004
11/2004
02/2005
05/2005
08/2005
11/2005
02/2006
05/2006
08/2006
11/2006
02/2007
05/2007
08/2007
11/2007
02/2008
05/2008
08/2008
Month and Year
No. 5 Battery Doors Monthly Average Percent Door Leaks

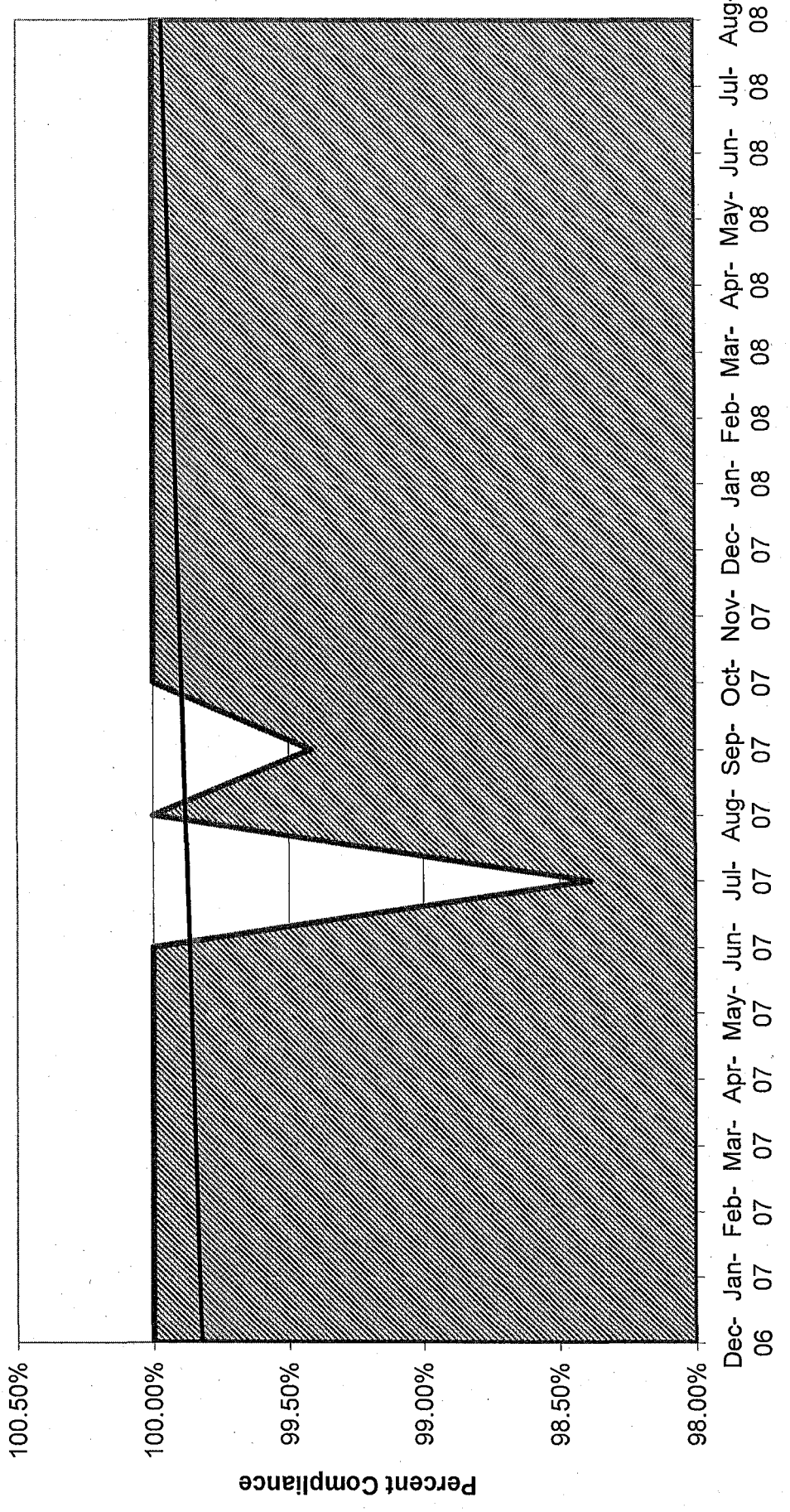

No. 7 Coke Battery Doors
Monthly Average Percent Door Leaks
02/2003 to 08/2008
Monthly Door Leaks (%)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
02/2003
05/2003
08/2003
11/2003
02/2004
05/2004
08/2004
11/2004
02/2005
05/2005
08/2005
11/2005
02/2006
05/2006
08/2006
11/2006
02/2007
05/2007
08/2007
11/2007
02/2008
05/2008
08/2008
Month and Year
No. 7 Battery Doors Monthly Average Percent Door Leaks

UPDATED PUSHING TREND


No. 2 Coke Battery
Monthly Pushing Compliance
December 2006 to August 2008
Percent Compliance
100.25%
99.75%
99.25%
98.75%
98.25%
97.75%
97.25%
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Month
No. 2 Coke Battery Percent Compliance

No. 5 Coke Battery
Monthly Pushing Compliance
December 2006 to August 2008




No. 7 Coke Battery
Monthly Pushing Compliance
December 2006 to August 2008
100.50%
100.00%
99.50%
99.00%
98.50%
98.00%
Percent Compliance
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
May-07
Jun-07
Jul-07
Aug-07
Sep-07
Oct-07
Nov-07
Dec-07
Jan-08
Feb-08
Mar-08
Apr-08
May-08
Jun-08
Jul-08
Aug-08
Month
No. 7 Coke Battery Percent Compliance

ATTACHMENT F

United States Steel Corporation
Gary Works
Coke Plant – Nos. 2, 5 & 7 Battery
Compliance Plan – Underfire Stack Opacity
September 3, 2008

Compliance Plan Element	Milestone Date
1. Begin evaluation of long-term options for Gary Coke.	In-Progress
2. As part of the enhanced preventative maintenance refractory repair program, complete first round of dry gunning on Batteries 5 and 7.	November 30, 2008
3. As part of the enhanced preventative maintenance refractory repair program, begin the first round of dry gunning on Battery 2.	December 31, 2008
4. As part of the end-flues and thru-walls program for 2008, complete repairs to 7 end-flues on Batteries 5 and 7.	December 31, 2008
5. As part of the end-flues and thru-walls program for 2008, complete repairs to 7 thru-walls on Battery 2.	December 31, 2008
6. Submit enhanced preventative maintenance refractory repair program schedule for 2009.	January 31, 2009
7. Submit end-flues and thru-walls program schedule for 2009.	January 31, 2009
8. Submit compliance plan to implement long-term compliance option which will include short term commitments to minimize emissions.	February 28, 2009

ATTACHMENT G

United States Steel Corporation
Law Department
600 Grant Street
Pittsburgh, PA 15219-2800
Tel: 412.433.2919
Fax: 412.433.2964
E-mail: dwhacker@uss.com

David W. Hacker
Attorney-Environmental

December 7, 2007

VIA E-MAIL AND FIRST CLASS MAIL

Mr. Janusz Johnson
Senior Environmental Manager
Indiana Department of Environmental Management
Office of Compliance & Enforcement Air Section
100 North Senate Avenue
MC 60-02 IGCN 1315
Indianapolis, IN 46204-2251

RE: Case No. 2007-17033-A
United States Steel Corporation – Gary Works

Dear Mr. Johnson:

As we discussed in our meeting on November 13th, United States Steel Corporation (U. S. Steel) is providing you with a list with descriptions of current projects and practices that U. S. Steel has implemented to improve opacity performance of the underfire stacks at Coke Oven Batteries 2, 5 and 7 at its Gary Works in Lake County, Indiana. Due to the nature of coke-making in combination with continuous monitoring, compliance with the underfire stack opacity limits remains one of the most significant environmental challenges that U. S. Steel and the industry face. While U. S. Steel has successfully implemented the projects identified below, which resulted in improvement in performance, it continues to search for ways to improve.

Within the last two years, U. S. Steel has implemented the projects and practices identified below.

1. **Enhanced Oven Inspection and Repair Program**

The enhanced oven inspection and repair program has been the key to the improvement in the performance of the underfire stacks. Simply, this program identifies problem ovens using the COM data and oven wall inspections and then appropriate corrective actions are identified and implemented. This program is used in addition to normal routine inspections. The goal of this program is to identify and correct a problem before an exceedance occurs. The following are the elements of the enhanced oven inspection and repair program:

A. Identification of Potential Opacity Problem – An improved system for notification of increases in opacity has been developed and implemented. Managers and heaters are notified via meter room alarms, pagers and cell phones when a potential issue with any stack is identified. Also, U. S. Steel tracks oven performance and identifies ovens that have the greatest frequency of opacity issues. These procedures are in addition to routine inspections. The goal is to identify the problem area before an exceedance occurs.

B. Oven Inspections – If data analysis or inspection reveals a potential problem with an oven, U. S. Steel investigates the source to identify and implement the appropriate corrective action.

C. Implementation of Corrective Action – Each problem is very unique and the appropriate corrective action must be identified and implemented based on the oven inspection and data analysis. Corrective actions include, but are not limited to, the following:

a. Cleaning and/or rodding of the flues and ports;
b. Sealing of identified leaks;
c. Adjustments in heating practices to reduce opacity;
d. Conventional spraying;
e. Drygunning;
f. Repairs to end flues; and
g. Thru-walls;

Implementation of this enhanced program has led to the reduction in opacity at the underfire stacks.

2. Implementation of Best Operation Practices

During the past two years, U. S. Steel, has (and it continues) to implement various best operating practices aimed at improving the environmental performance of the coke oven batteries. These practices include improving leveling practices to consistently provide a tunnel-head across the top of the oven that allows the gas to flow freely into the off-take system, reducing oven pressure. U. S. Steel has increased its monitoring of charging practices to insure that ovens are not left empty unnecessarily for long periods of time. U. S. Steel also monitors gooseneck cleaning and has improved the maintenance of the flushing liquor sprays.

3. Additional Training for Operators

U. S. Steel has developed and implemented additional training for operating personnel. The training programs include, among other things, understanding the

significance of the best operating practices identified above. The training program teaches operators to be proactive. The heater training is not only conducted for new employees, but also includes an annual refresher for all affected employees.

4. Improved Back Pressure Control.

Proper operation of the off-take system is essential to allow the gas to leave the oven chamber freely and to reduce the pressure inside of the oven that will force the gases into the heating walls. Beginning in 2005, a program was implemented to systematically repair or replace valve bodies on Batteries 2, 5, and 7. The In 2007, U. S. Steel engaged a technical consultant to troubleshoot and modify controllers on Coke Oven Batteries 5 and 7. We continue to optimize the controllers to improve their performance and to inspect and repair the valve bodies as required.

As we discussed, we would like you to come and visit the Gary Works coke facility, at which time we would like to discuss the above referenced practices and procedures. In addition, U. S. Steel is preparing the submittal to you concerning the exemptions including a detailed description of the exemption and how the exemption meets the definition of emergency. In the interim, should you have any questions regarding this matter, please feel free to contact me at 412.433.2919.

Very truly yours,

David W. Hacker

cc: S. Cutts, Esq. (Office of Attorney General)
C. Henry (IDEM)
J. Alexander (USS)
M. Jeffrey (USS)
K. Mentzel (USS)
J. Penman (USS)
L. Sutherland (USS)
T. Woodwell (USS)

bcc: C. D. Baker
D. Barker
T. Brayton
M. Cantu
G. Coulter
D. Nadolski
S. Owen
D. Przybylinski